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THE JOURNAL

THE SOUTH CAROLINA MEDICAL ASSOCIATION

A DEFINITION OF DEATH

DOES YOUR CHILD OR PATIENT HAVE SCOLIOSIS?

ABSTRACTS FROM THE 16TH ANNUAL MEETING OF THE
SOUTHERN SOCIETY OF ANATOMISTS

CHARLES S. BRYAN, M.D., NEW JOURNAL EDITOR

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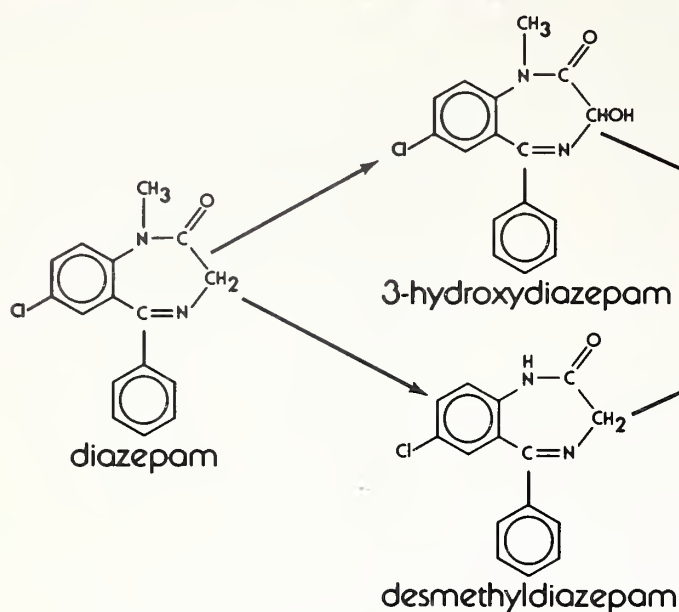
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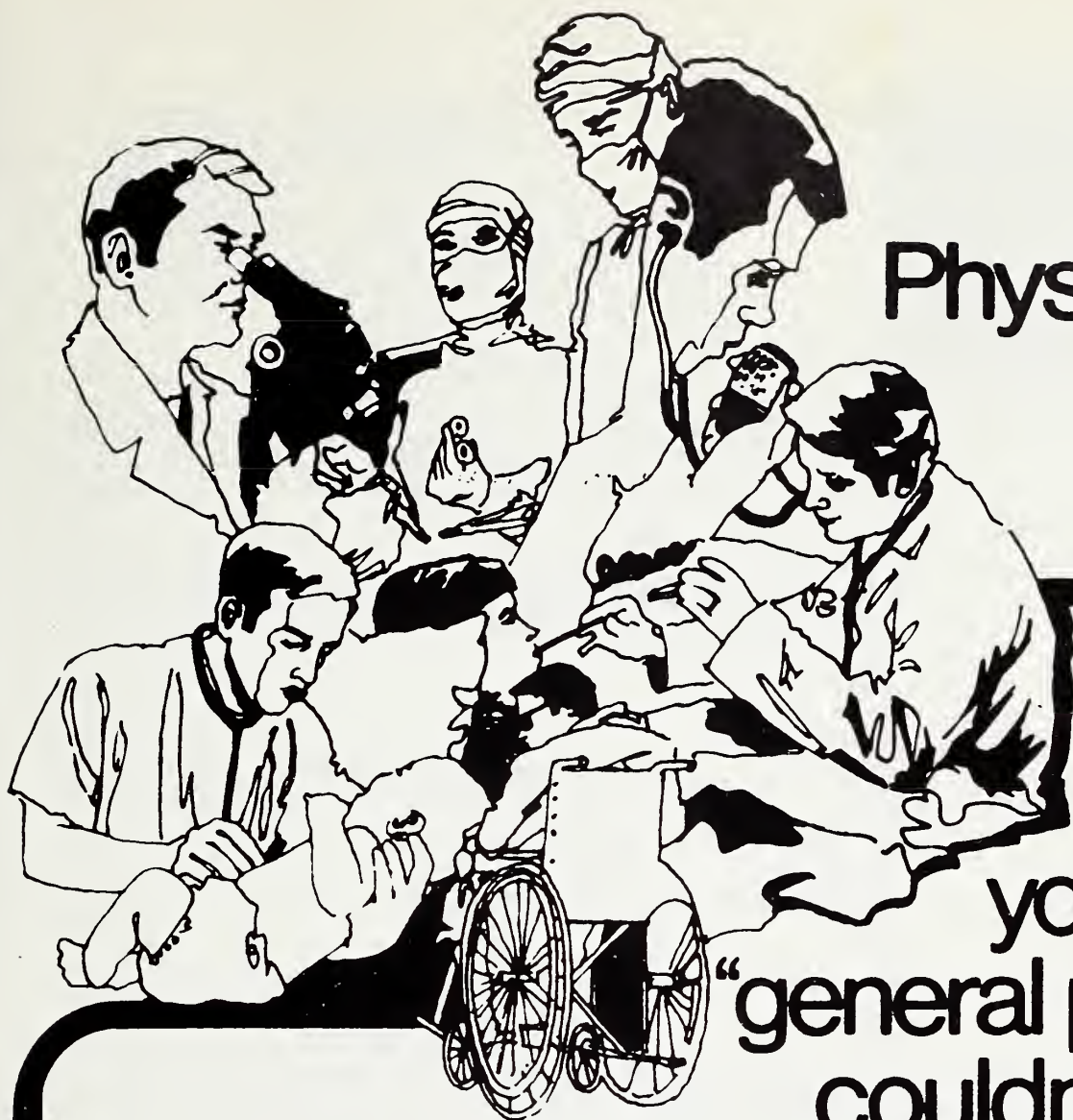
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OF THE SOUTH CAROLINA MEDICAL ASSOCIATION

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NUMBER 1

A DEFINITION OF DEATH

WILLIAM F. FAIREY, M.D., LL.B.*

With the advance of medicine the doctor-patient relationship has undergone dramatic and sometimes stressful changes in recent years as witness the profusion of malpractice cases. Of equal socio-economic concern is the doctor-patient relationship at the time of death, indicating the need for a definition of death. In this light let us consider four different circumstances in which the doctor and the patient together confront death.

The first instance is that of a patient who has sustained "absence of respiration and cardiac function" as determined by a physician who gives as much time in evaluating the death as is inversely proportionate to the suddenness of the death. For the physician and society this historical definition is really not a problem, and death is an absolute medical decision that can be routinely made.

The second instance is when the patient is in the hospital and has been declared "terminal" by the physician; he has usually consulted with the family who accepts the physician's judgment. In most of these cases, the doctor surprisingly practices passive euthanasia by withholding IV fluids, by withholding antibiotics when the infection is

secondary to the terminal illness and by not utilizing life-prolonging tubes and nutrition. The physician's attitude is "Who am I to play God by interfering with death — by prolonging this life?" The large number of instances in which this occurs, the routine acceptance of this responsibility by the clinical physician and the accompanying absence of any malpractice suit under these circumstances is most unique especially in light of readily identifiable medical-legal pitfalls:

- a. The physician has made a judgment of terminality which contains a certain element of subjectivity and error.
- b. Although the families consent, they do so in an informal context — with whispers in the corridor or waiting room where the conference is usually held. The legal next of kin are not always present to consent; who is the legal "family" under these circumstances? It seems that an occasional Aunt Tilly who was not present at the consent conference would have brought suit against the doctor.
- c. Then of course passive euthanasia in itself contains certain risk factors in the very "non-act" of precipitating death.

But the acceptance of death in this context by the patient, the family and the doctor works! . . .

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as evidenced by the absence of any suits against physicians for passive euthanasia. Success is apparently due to a unique rapport which arises between the doctor, patient and family in facing death in its universal form as specifically represented by this patient. Also the family is emotionally, physically and probably financially drained and unconsciously, with relief, accepts the final judgment by someone with authority as is the physician; it has the appearance of a natural "Act of God." This situation is not presently a social or a medical-legal problem, therefore, should be left alone except to recognize its success as support for the thesis which proposes a more aggressive attitude toward defining death.

The third instance of the doctor and patient together facing death is the case in which the patient is in a comatose state, either reversible or irreversible, the circumstances of which have led to an attempt to define Brain Death. This evolution has followed a tortuous but progressive course beginning in the 1960's with The Anatomical Gift Act, a uniform law providing for donation of parts or all of the body at death for medical purposes. Since its introduction, this uniform law has been adopted by most jurisdictions. Although the mechanics of donating parts of the body by utilizing a donor card have been used only sparingly, this Act had its impact by publicizing the need for organs for transplant purposes; however, its most meaningful contribution was its silence on the definition of death thereby challenging law, medicine and society to engage in a dialogue on death for the purpose of an ultimate adoption of a definition.

And there has been a response to this challenge, as evidenced by an attempt by varying legal and medical committees on a national and international level to define death, including the Ad Hoc Committee of the Duquesne University Law School (1968), the World Medical Association (1968), the Ad Hoc Committee of the Harvard Medical School and the Pittsburgh Committee and other world-wide attempts to develop criteria for Brain Death. In each committee, the criteria for brain death were established in an effort to coincide with medical reality, including primarily a well-controlled series of flat electroencephalograms (EEG) and the recognition of certain exceptions including Hypothermia and Barbiturates. Significantly, the criteria emanating from each of these sources are in substantial agreement except the recommendation for re-

petition of the EEG to confirm inactivity of the brain following the initial flat EEG ranges from a minimum of a two-hour interval by some committees to a maximum of 24 hours by others. The unexpected consistency of these parameters from such a conglomerate of investigators indicates that Brain Death does lend itself to a medical definition.

The next significant step in the progression of a definition of death was the adoption by Kansas of a Statute defining death (1970); since that time the law has been adopted in substance by Maryland and Virginia. This statute:

First: Restates the historical definition of death, that is, absence of spontaneous respiration and cardiac function:

Secondly: Recognizes Brain Death as determined by "ordinary medical standards" so that by leaving the precise definition undetermined it allows for additional knowledge and changes in the evaluation of brain death; and

Thirdly: Under the circumstances of brain death or irreversible coma, death is to be pronounced while the patient is still attached to the life-sustaining devices so that the organs removed for purposes of transplant are viable and to protect the physician against the charges of a premature declaration of death. This provision accepts the death of the person but recognizes the necessity for keeping the organs alive.

It would be a mistake at this time for any statute to specifically state what precise conditions must exist before brain death can be declared; however, such a statute may provide for a nonpaid Commission to recommend criteria which may be altered by the Commission as advances in the technique of Brain Death develop. The Commission may function on a state level, medical region or even within the confines of each hospital. The Commission should be composed of a cross section of the community under the leadership and control of medicine but to include religious, legal and social input. Criteria would include a truly isoelectric EEG to be clinically applied by at least two physicians who are not members of the transplant team. The interval for the repetition of the test to determine brain death, other detailed mechanisms and final authority should be left to the discretion of each hospital staff within the jurisdiction. Also, it is of major importance that exceptions to allow for

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resuscitative efforts on emergency, primarily traumatic patients be written into any such criteria.

This type of statute as utilized in Kansas and with a broad based community consensus is much preferred to awaiting developments of case law with its variable medical standards changing from case to case and its ultimate unpredictability as in the *Tucker v. Lower* case which came out of Virginia in 1972. In this case, the brother of the decedent sued a team of doctors who had removed the deceased's heart for the purpose of transplant. The decedent had suffered head injuries and was placed on a respirator with the determination of brain death; therefore, the respirator was turned off. The controlling factor was whether the doctors killed the decedent by "pulling the plug" or whether he sustained brain death before the plug was pulled. In the suit for Wrongful Death, the jury was charged with the awesome responsibility of selecting which one of several definitions of death including Brain Death was appropriate. Although the jury with unique wisdom recognized Brain Death in this case, these decisions are of too great social significance to be left to the vagaries of a jury's deliberation with its limitation in scope, time and responsibility to decide which of several definitions or criteria should be adopted. In the *Tucker* case and others, the courts seem to be probing for a definition, recognizing the reality of brain death but unable to define it. This definition can best be resolved by statute.

Over the past 35-40 years, there has been another series of cases in which the patient was in a state of coma and lingering, ultimately spontaneously losing respiratory-cardiac function. Survivors brought suit for the purpose of determining the time of death which was controlling and critical in each case, e.g., the Right of Survivorship under Joint Tenancies, claims to rights of proceeds of insurance policies, conflicts rising out of Simultaneous Death and in murder-manslaughter cases where the accused have in some instances been exculpated on the technicality of inability to define the time of death. In one such case the deceased victim was placed on artificial devices for more than one year; therefore, the court ruled that the accused could not be charged with murder. As these cases are reviewed, it is understandable that the courts did not accept brain death in spite of expert tes-

timony to this effect. It would have been presumptuous of the court to declare brain death prior to spontaneous death when practicing medicine through the attending physician in each case did not so declare it — and practicing medicine fearing malpractice suits, refused to assume the responsibility thereby creating a vicious circle to the detriment of the brain death patient, the survivors and society.

On the other hand, the statutes inherently provide for a time certain for declaration of death. It substantially resolves the primary issue of the time of death, thereby voiding the necessity for suit; under this type of statute the time of death becomes a matter of absolute fact and not a matter to be determined by law.

By the same token, leadership should discourage adopting statutes such as the one in Virginia whereby the Chief Medical Examiner or Coroner who has taken charge of the body incidental to his primary criminal duties has been given the authority to turn the body over to the transplant team without permission of the family. This is a breach of public trust in using bodies for other than criminal and community purposes and one that rightfully creates antagonistic reaction by the public. It invalidates consent which should be required in all transplant cases. In "Coroner" cases, the consent of the Medical Examiner and of the family should both be required.

In this hiatus of heart transplant when we are presently removed from the emotional conflicts of declaring death for the benefit of the transplant patient, we are at an excellent juncture to objectively resolve a definition of death rather than waiting until we are once again thrust into the midst of the electrically-charged atmosphere of transplantation.

The fourth instance of the doctor and patient together confronting death is that of active euthanasia as represented by the case of *Speight v. Sander*, a 1950 New Hampshire case in which the defendant physician admitted injecting 40 cu. cm's of air into the blood stream of a suffering, hopelessly ill cancer patient whose death resulted less than ten minutes after the injection. In spite of rather clear evidence in this case, the jury acquitted the doctor. This is the only case in which a doctor has been indicted in an American jurisdiction for killing a patient. As stated, there has never been a single indictment of a physician for mercy killing by omission.

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The ethicists state that active euthanasia is neither absolutely right or absolutely wrong and that the question evolves on the given circumstances, but usually the circumstances are such that active euthanasia is morally unacceptable because it requires a positive, precipitous act which is the immediate and direct cause of death. So active euthanasia does not lend itself to definition at this time and may never do so; each case may have to be resolved on its own merits. By comparison, in the euthanasia cases of omission, that is, in the instance of "terminality" as declared by the physician, the continuous process of dying persists without interference by the physician and is substantiated by the patient obligingly doing so containing all the elements of a natural act.

In summary the people have whispered if not spoken favorably for a kind of euthanasia as witness the juries in the Sander and Tucker cases and shout their acceptance by their silence in the

failure to sue or even indict in active as well as in passive euthanasia cases. Statistics show that 90 percent of the population want to die quickly to avoid suffering. Similarly, religion has spoken — Catholic and Jewish leaders both say that any factor which artificially delays the patient's final demise may be withdrawn. Ethics have spoken approvingly of death with dignity and the Courts seem to be probing for a solution. The elderly have spoken, as in the case of an eighty year old woman who stated "How much more joyous the next 20 years would be if I at this time could have a private sensible arrangement with my doctor to let me die in peace and dignity instead of squandering my estate in keeping alive a nothing." Is this not the time for the legislatures to transform the medical definition into a malleable legal definition which remains in limbo because there has been a failure to recognize that Brain Death has achieved a definable plateau. □



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DOES YOUR CHILD OR PATIENT HAVE SCOLIOSIS?

LAWRENCE F. McMANUS, M.D.*

Does your child, grandchild, or patient have scoliosis? What is scoliosis? How many people are affected with scoliosis? What causes it? How can we detect it? What can we do for it? You will find the answers to these questions in the following paragraphs.

What is scoliosis? Scoliosis is one or more lateral or side-to-side rotary deviations of the spine which develop during growth. A right curve is one which has its convexity or is pointing to the patient's right side. A left curve is one which is pointing or has a convexity to the left of the patient. A thoracic curve is located in the thoracic pattern of the spine. A thoracolumbar involves both a portion of the thoracic and lumbar spine, and a lumbar curve, the lumbar portion of the spine. A structural curve is one which does not go away on either having the patient bend to the right or the left sides or placing traction on the patient, such as lifting him by the axilla. A nonstructural curve is one that does disappear or does go away when the previous mentioned maneuvers are performed. A primary curve is a curve which has developed first and usually is the most significant curve. Secondary curves form in response to the primary curve in an attempt to maintain the body in an erect, balanced position.

The incidence of scoliosis is approximately two per cent of the population greater than fourteen years of age. Approximately ten per cent of chil-

dren in school have a spinal deformity, two per cent of whom should be undergoing active treatment. The incidence in males and females is approximately the same, however, females usually develop more severe curves than males.

What causes scoliosis? There are four large etiologic groups: Idiopathic, congenital, paralytic and the miscellaneous group. The idiopathic group constitutes approximately seventy per cent, the congenital group ten per cent, the paralytic fifteen per cent and the miscellaneous group five per cent.

Idiopathic scoliosis is subdivided into three groups. The infantile which exists from birth to three years of age. The juvenile extends from three years of age to the onset of puberty and the adolescent type which develops after the onset of puberty.

Infantile idiopathic scoliosis is present at birth. These are usually small curves which remain flexible and usually resolve without treatment. Some of these, however, become structural in nature and may produce severe curves. The majority of these are left thoracic curves. These, for some unknown reason, are usually not seen in the United States but have been observed in England and other parts of the European continent.

Juvenile idiopathic scoliosis is usually discovered after the age of six and is usually a right thoracic curve and these curves must be watched very carefully because they may result in severe deformities.

Adolescent idiopathic scoliosis usually has a

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familial history of approximately fifteen per cent. The majority of these are right thoracic or thoracolumbar curves. The younger the onset with progression of these curves the graver the final outcome. These curves generally progress most rapidly during the adolescent growth spurt.

Congenital scoliosis is due to some bony abnormality in the formation of the spinal column and these have to be evaluated individually and treated appropriately.

Paralytic scoliosis constitutes approximately fifteen per cent of the scoliotic cases and is due to a variety of disorders including polio, cerebral palsy, Friedreich's ataxia, neurofibromatosis, syringomyelia, myelomeningoceles, muscular dystrophy, and spina bifida.

The miscellaneous group constitutes approximately five per cent of the cases and may be due to tumors, radiation of the spine for various tumors, thoracoplasty, trauma, arthrogryposis, various forms of dwarfism, mongolism, rickets, homocystenuria, Marfan's syndrome, Ehlers-Danlos syndrome, general ligamentous laxity, Marquio's syndrome, nail-patella syndrome, and a variety of other causes.

What does the parents or patient with scoliosis complain about? In the summer the parents usu-

ally notice a spinal deformity when the child is wearing a bathing suit. Other reasons for seeking the advice of a physician is that "dresses just don't fit right;" "the hem of the dress is unequal;" "one shoulder or one hip is higher than the other;" "have to pull pantsuit higher on one hip than the other to make it fit right." If a patient relates the above stories one must suspect a spinal deformity or unequal leg lengths.

How can we detect scoliosis? The patient should, ideally, be examined undressed. In school screening programs a suitable compromise is to examine patients in a bikini, halter top, body suit, or least satisfactorily in tight fitting clothes. In evaluating a patient for spinal deformity one should look for inequality in the shoulder heights, (see Figure 1A) inequality of hip heights, obvious deformity of the spine, abnormal flank creases and deformities of the rib cage or soft tissue masses lateral to the spine. The most effective method is to look for abnormalities in the soft tissue mass lateral to the spine with the patient bending forward. On forward bending, a prominence of the soft tissue will be detected on the convex side of the scoliotic deformity. (See Figure 1B.) The soft tissue bulge is due to a deformity of the soft tissue which results from the



Figure 1A



Figure 1B

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deformity of the spinal column itself. This is the most effective way of detecting scoliosis. This screening can be performed in selected grades in schools by the school nurse, physical education teacher or interested parents. Such screening programs should be initiated in South Carolina.

Is there any pattern associated with adolescent idiopathic scoliosis? There are four major curve pattern types: Right thoracic, right thoracolumbar, double major curves, and lumbar curves. The right thoracic is most common of the idiopathic curvatures. It usually extends from T-4, T-5 or T-6 down to T-11, T-12 or L-1. This is the most cosmetically deforming curvature. Approximately two-thirds of these curves are greater than seventy degrees.

The right thoracolumbar is the second most common curve. It extends from the midthoracic spine down to the upper portion of the lumbar spine. This gives a fair cosmetic appearance and the majority of these curves are less than seventy degrees. The double major curve may take on a variety of appearances, perhaps a right thoracic left lumbar or left thoracolumbar right lumbar, right thoracic left thoracic and these are often not very cosmetically deforming and the majority of these are less than seventy degrees. We find lumbar curves to be relatively infrequent type curves. They are not cosmetically deforming but may produce pain later on in adult life.

What can be done for scoliosis? A curvature under twenty degrees requires observation and this should be performed every three to six months with follow-up x-rays. Exercises may be performed with curves under twenty degrees but exercises by themselves are not beneficial for correcting scoliosis. For curvatures of over twenty degrees to approximately forty degrees, the Milwaukee brace or the Boston brace is treatment of choice. After forty to forty-five degrees bracing is not effective and spinal fusion with some type of internal support, either Harrington rod or screws and cable of the Dwyer type is indicated.

Can idiopathic scoliosis increase? The answer to this question is definitely "yes" as exemplified by this case: (See Figure 2 A, B, and C)

At age eight, the patient was seen with a twenty degree curve and was advised treatment at that time, however, the parents refused. She was not seen again until age 11 when her curve measured forty-eight degrees. Again the parents were advised she

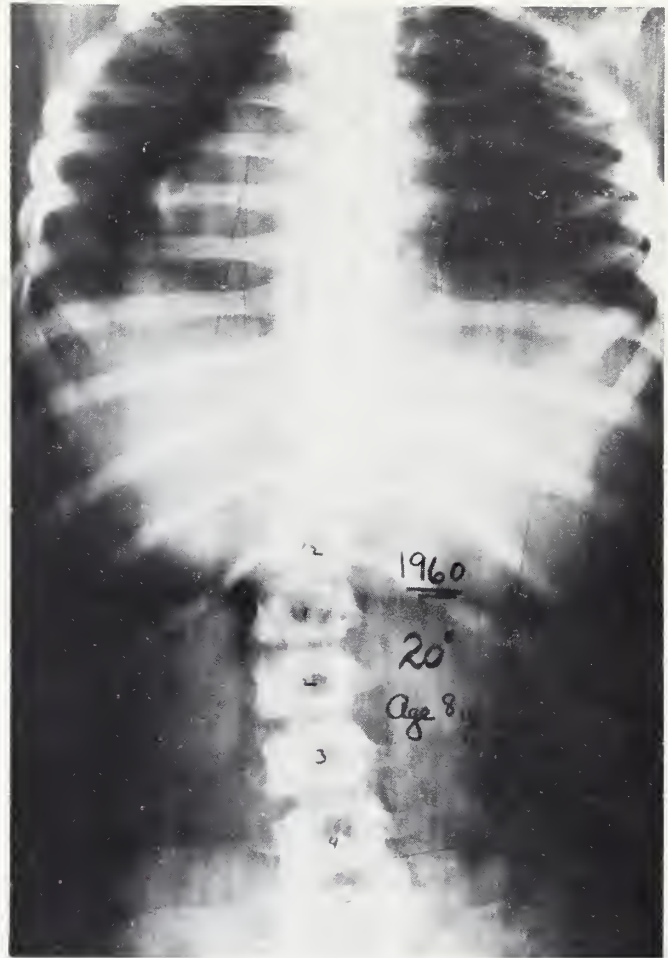


Figure 2A

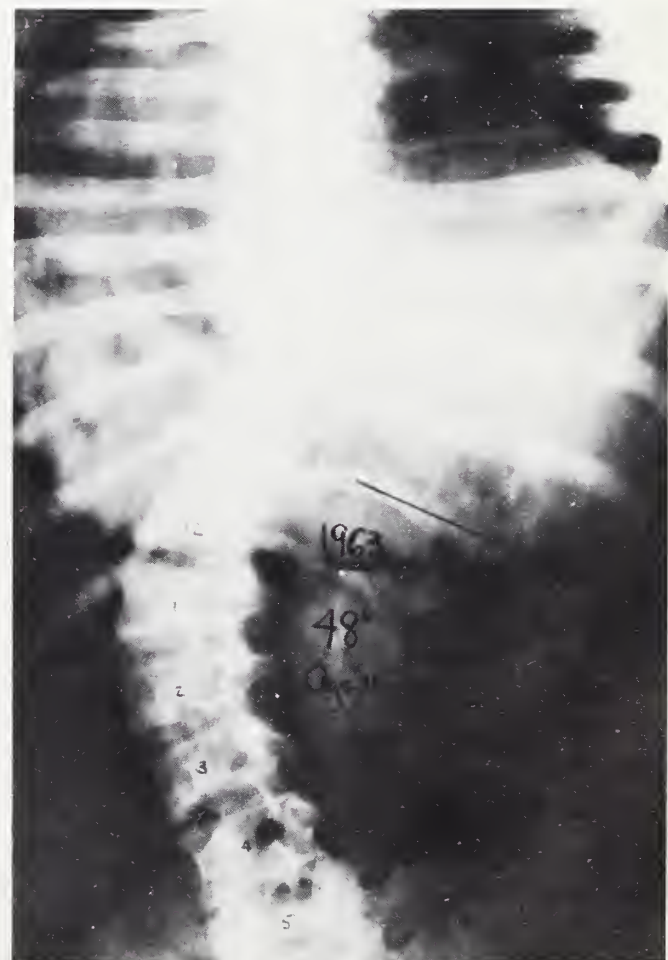


Figure 2B



Figure 2C

should have treatment and they again refused. The patient was finally seen in 1971 at the age of nineteen with a seventy-two degree curve.

The major problem with scoliosis is its cosmetic deforming qualities and also its effect on the cardio-respiratory system.

Scoliosis causes a diminished vital capacity, diminished total lung capacity, decreased compliance, decreased blood oxygen concentration and increased blood CO² concentration. These all result eventually to restricted lung disease and lead to an early death usually in the late forties or early fifties.

As physicians we can detect and treat scoliosis early and prevent severe curves from developing. An excellent movie entitled, "Scoliosis Screening" is available on a loan basis, free of charge, to interested physicians, PTO groups, physical therapists, physical education teachers from the Film Library, South Carolina Department of Health and Environmental Control, 2600 Bull Street, Columbia, South Carolina. Let us all be concerned in improving the quality of health in South Carolina. □



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SOUTHERN SOCIETY OF ANATOMISTS 16TH ANNUAL MEETING

The Southern Society of Anatomists 16th Annual Meeting was held October 13-16, 1976 at the Atlanta Hilton Hotel. Presiding was W. Keith O'Steen, Ph.D., President of the Society. Official abstracts of the meeting follow.

ANDERSON, A. A., Department of Physical Therapy, Georgia State University, Atlanta, Georgia. *Intrafusal muscle fiber hypertrophy in deafferented rat muscle.*

Sarah Tower (Brain, 55:77-90, 1932) suggests that sensory nerves may have a trophic influence on muscle spindles. The purpose of this investigation is to quantify the morphological changes in intrafusal muscle fibers following sensory denervation.

Seven rats underwent unilateral dorsal root ganglionectomy. After a six month survival period the muscle spindles from the rectus femoris muscles were examined with a light microscope. The statistical reliability of structural changes following deafferentation were evaluated with the Student *t* test.

There was a 29% hypertrophy of the nuclear chain intrafusal muscle fibers, which was significant at the $p < .001$ level in the surgically acceptable animals. There was also a significant decrease in intracapsular diameter and a general decrease in the number and size of nuclei at the equator of the nuclear bag intrafusal muscle fibers.

Hypertrophy was not demonstrated in the intrafusal muscle fibers of animals following ventral root rhizotomy or following combined ventral root rhizotomy and dorsal root ganglionectomy. Sensory endings appear necessary for the maintenance of the small size of the nuclear chain intrafusal muscle fibers, of the spindle capsule diameter, and of the equatorial nuclei of the nuclear bag intrafusal muscle fibers.

BARRETT, C., J. CUBITT, and E. DONATI. Department of Anatomy, School of Medicine, University of Maryland, Baltimore. *Differences in tumor induced hypercalcemia due to differences in growth site of tumor.*

Intramuscular growth of a transplantable mammary tumor, MT-75, induced hypercalcemia in all C3H/Fg mice inoculated with the tumor. In this strain, serum calcium concentrations rose from 8.4 ± 0.3 mg/dl to 12.1 ± 1.8 mg/dl three weeks following tumor implantation. Spontaneous mammary tumors in C3H/Fg mice, however, resulted in hypercalcemia in only 6 of 8 mice. To determine if differences in growth sites might explain this difference, we implanted the MT-75 tumor subcutaneously into 30 C3H/Fg mice. In this group, six mice failed to develop hypercalcemia. Of those that did develop

hypercalcemia, the highest serum calcium concentration reached was 10.1 mg/dl. Thus, neither the incidence nor the degree of hypercalcemia of the intramuscular tumor matched that of the subcutaneous tumor. This suggests that the site of tumor growth is an important factor in determining the hypercalcemia-inducing-effect of MT-75, and perhaps other tumors. Supported by a grant from A.C.S., Md. Div. and Bressler Res. Fund, University of Maryland.

BARRETT, J. MICHAEL¹ and WILHELM KRIZ, School of Basic Medical Sciences, University of Illinois, Urbana, Illinois and The Anatomy Institute, University of Heidelberg, Heidelberg, Germany. *Recent Advances in Renal Medullary Structure and Function.*

By injecting single superficial, or single juxtamedullary nephrons of mouse and rat kidneys, we have shown that the thin descending limbs of short nephrons descend only to the depths of the outer medulla, are segregated solely within the vascular bundles of the outer medulla, and make their transitions to the thick ascending limbs before turning back toward the cortex. Contrarily, the thin descending limbs of long nephrons descend through the outer medulla isolated outside the vascular bundles, and continue their descent into the inner medulla and papilla to varying depths. In the papilla, they bend back to form the thin ascending limb which persists until they ascend to the lowest level of the outer medulla, whereupon the thick ascending limbs continue up to the cortex.

EM studies of these various limbs in mouse and rat have shown the presence of four epithelial types. Type 1 is seen in thin descending limbs of short nephrons. Type 2 is the outer medullary segments, and Type 3 is the inner medullary segment of the thin descending limbs of long nephrons. Type 4 is represented by the thin ascending limbs of long nephrons (inner medulla).

More recently, studies have been completed on the histotopography and epithelial characterization of the desert sand rat kidney. This animal is favored by many renal physiologists because it was reported to have 100% long nephrons. However, our investigations demonstrate the occurrence of 66% short nephrons and concurrence with the general plan of organization as shown in the mouse and rat kidney.

¹ Supported by the Alexander von Humboldt Foundation.

ABSTRACTS

Recent studies by Kokko and colleagues have provided new insights into the renal concentrating mechanisms thereby challenging some of the more traditional concepts. The role of short and long nephrons in the renal concentrating mechanisms will be discussed.

BATTEN, B. E. and J. L. HAAR, Department of Anatomy, Medical College of Virginia, Richmond, Virginia. *A morphologic study of early post implantation mouse embryos.*

The morphology of early post implantation mouse embryos was studied using light and electron microscopy. Observation of a vaginal plug was taken as an indication of successful mating and considered day zero of gestation. Implantation sites aged 7, 7.5 and 8 days were dissected from the myometrium and whole implants, decidua and egg cylinders were processed for electron microscopy. Seven day egg cylinders were composed of two germ layers, a tall columnar ectoderm and an endodermal layer composed of two cell populations. One endodermal cell type observed was tall columnar in shape and appeared absorptive as demonstrated by many microvilli, pinocytotic profiles and lysosomal granules. This population was confined to extraembryonic regions of the egg cylinder. The second cell type observed was squamous in shape and lacked microvilli, pinocytotic profiles and lysosomal granules. This population was confined to the embryonic region of the egg cylinder. By day 7.5 indications of primitive streak mesoderm were apparent interposed between ectoderm and endoderm. These mesodermal elements were large primitive stellate cells exhibiting large intercellular spaces. By day 8 the cephalic region of the primitive streak (head process) had assumed a midsagittal position in the egg cylinder. Movement of the head process between ectoderm and endoderm resulted in a marked attenuation of the embryonic endoderm. Ultrastructurally the head process resembled both mesodermal and endodermal elements.

BERESFORD, W. A., Department of Anatomy, School of Medicine, West Virginia University, Morgantown, W. Va. *Chondroid bone.*

Chondroid bone is a tissue sometimes seen in or on bone that appears microscopically not to be typical bone or cartilage, but to combine characteristics of both. The term has been applied to several entities, most of which are confined to particular sites, arise during development, disease, or after experimental intervention, and do not persist. Thus chondroid bone (CB) forms in transitional zones between cartilage and bone or periosteum and bone directly from the action of progenitor cells in four circumstances: skeletal development, fracture repair, skeletal and soft-tissue tumors, and in experimentally induced ectopic bone. Secondly, if differentiated cartilage can experience a metaplasia or modulation to bone, and *vice versa*, the intermediate stage could be called CB. Also, CB has been used to say something about the origin of a tissue now indistinguishable from bone or cartilage. Thus CB for that bone of fishes which develops from a chondroid tissue; CB for one kind of secondary cartilage that appears on certain membrane bones; and CB for bone formed by hypertrophic cartilage cells liberated from their lacunae, should such cells survive the erosion.

Although tissues intermediate between bone and cartilage undoubtedly exist (examples from the temporo-mandibular joint and penile bone will be shown) and raise issues of theory, CB has been applied in circumstances so varied and

dynamic that the unqualified term is impotent for classification and description.

BOCKMAN, DALE E., Department of Anatomy, Medical College of Georgia, Augusta, Georgia. *Structure of the normal exocrine pancreas: Anastomosing tubules.*

Routine serial paraffin sections of 7 μ m were prepared from formalin-fixed pancreas from 5 adult female Long-Evans rats. The interrelationship of ducts and zymogen granule-containing units was studied. Wax reconstructions were prepared from portions of 4 lobules — 2 from 1 animal and 1 each from 2 others. Only the areas which actually contained zymogen granules were outlined and reconstructed. The reconstructions uniformly displayed a continuity of zymogen-containing areas in three dimensions. Study of the serial sections and of the reconstructions strongly suggests that the exocrine pancreas is arranged as a continuous, branching mass of tubules which anastomose with each other. The tubules are almost constantly curving and are of varying diameter. Some of the tubules end blindly and therefore could be called acini. The overall arrangement, however, is tubular, somewhat similar to a capillary network. This arrangement would explain the seeming proliferation of ducts and the concomitant decrease in "acini" which has been observed after ligation of the pancreatic duct and during induction of pancreatic tumors. The zymogen granule-containing anastomotic tubules would simply take on the appearance of ducts when the zymogen granules were lost. (Supported by NIH Grant RR-05365)

BROWN, H. K. and NOLAN, M. F., Department of Anatomy, University of South Florida College of Medicine, Tampa, Florida. *Synaptology of the sacral parasympathetic nucleus.*

Identification of the sacral parasympathetic nucleus (SPN) was based in part on positive reactions of acetylcholinesterase (AChE) activity. The majority of the neuron cell bodies comprising this nucleus in the cat are lateral in the sacral intermediate gray. The nucleus is perforated by longitudinally coursing myelinated fibers. The neurons were classified on the basis of profile size, nuclear morphology, arrangement of granular endoplasmic reticulum and intracellular (AChE) localization.

The dendrites of SPN neurons extend into adjacent gray, the lateral funiculus and along the lateral border of the dorsal horn (Lamina 1 or 2?). The dendritic profiles were classified as proximal large (3-5 μ m), medium (1-3 μ m) and small (1 μ m or less). Synapses were designated according to symmetry of membrane specialization and vesicle type. Synaptic profiles rarely occur on soma and proximal dendrites of SPN neurons. Boutons contacting small and medium dendrites, as determined by frequency per unit of available membrane length, are approximately three times more frequent than on large dendrites. A dorsal extension of dendrites along the lateral margin of the dorsal horn parallels bundles of thin unmyelinated axons (0.3 μ m) with varicosities (1-3 μ m) which contain dense core vesicles (800-1000Å) and clear spherical vesicles (300Å). The major synaptic influence occurs on distal dendrites which may project outside the SPN and through the varicose axons containing dense cored vesicles.

BROWNING, H. C. Department of Anatomy, The University of Texas Health Science Center at Houston, Dental Branch and Medical School, Houston, Texas. *Introduction to*

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Topographic Anatomy: Anatomical Position, Orientation, and Movements.

In the living subject, anatomical position and planes of reference, such as the sagittal, coronal, and transverse, are demonstrated. Examples are given of the use of such relative terms as superior and inferior, medial and lateral, anterior and posterior, and proximal and distal.

The movements of flexion-extension, abduction-adduction, and medial-lateral rotation are shown. Attention is also directed to supination-pronation, dorsi- and plantar-flexion, and to opposition of the thumb.

Major topographic landmarks are indicated in the skeleton and subject, and the use of these in plotting the position of deep structures is demonstrated. Examples shown include the temporo-mandibular articulation in the head, the major triangles in the neck, the outline of the heart in the thorax, the ileo-colic junction and appendix in the abdomen, the kidneys in the back, the sacral hiatus in the pelvis, the cubital fossa in the upper extremity, and the sciatic nerve in the lower extremity.

Anatomy:

- Gross, medical
- Gross, dental
- Surgical

CAPRA, N. F., Department of Anatomy, University of Alabama in Birmingham, Birmingham, Alabama. *The Effect of Middle Cerebral Artery Occlusion on the Catecholamine Content of Cerebrovascular Nerves in the Cat.* Sponsored by Dr. Jerry William Brown.

Removal of one superior cervical ganglion in cats resulted in the ipsilateral loss of catecholamine fluorescence of the intracranial perivascular nerves within 48-96 hours as demonstrated by the Falck-Hillarp technique. A similar result followed adventitial stripping of one middle cerebral artery. In contrast, unilateral middle cerebral artery occlusion resulted in hemispheric infarction and bilateral depletion of norepinephrine in the perivascular nerves in 8 cats. The depletion of catecholamines first became evident by 24 hours and was usually complete by 96 hours. Unilateral occlusion of the middle cerebral artery has been shown to result in the bilateral decrease in tissue catecholamines (Robinson *et al.*, 1975) and also in the bilateral depression of cerebral blood flow (Meyer *et al.*, 1970). Bilateral alteration of cerebral function following unilateral brain injury has been termed "diaschisis" (Monakow, 1914). Apparently the bilateral loss of catecholamine fluorescence in the intracranial perivascular nerves is another manifestation of diaschisis and may, in part, be responsible for some of the observed abnormalities in cerebral blood flow following unilateral cerebral ischemia. (Supported by NIH Grant NS 08802)

CUBITT, J. and C. BARRETT, Department of Anatomy, School of Medicine, University of Maryland, Baltimore. *An improved method for serial bleeding of mice by cardiac puncture.*

In mice, some analytical tests require a sampling quantity of 0.5-1.0 ml of blood with serial bleedings to follow. Cardiac puncture would be the method of choice for collecting uncontaminated blood quickly and conveniently. However, existing techniques for this often result in high mortality. We, therefore, developed a technique which utilizes: (1) ether anesthesia; (2) a small gauge needle; (3) a proper site of

puncture; and (4) a shallow angle and depth of puncture. To assure that this technique leaves the mouse free from traumatic effects, we studied the weights and hematocrits of 50 mice which had undergone serial cardiac punctures at daily to weekly intervals. In nearly every case, the hematocrit dropped initially, but then stabilized at a value slightly below that of normal. There was no significant change in the weight of the animals, minor cardiac damage, and a low mortality. Thus, this method of cardiac puncture appears to be superior to others described in the literature.

ENGLISH, ARTHUR WM., Department of Anatomy, Emory University, Atlanta, Georgia. *Forelimb Function During Locomotion in the Cat.*

The angular movements of the joints and the linear movements of the individual segments of the forelimb used during overground locomotion in eight adult cats were examined using slow motion cinematography. Simultaneous intramuscular electromyography (EMG) provided synchronized information as to the onset, duration and intensity of activity of each of the forelimb muscles. The limb movements consist of a single flexion (F) and three extension (E^{1-3}) epochs. The duration of F is nearly fixed at 125 msec., but the duration of the extension epochs is inversely related to stepping speed. EMG analysis suggests an overall designation of muscles as flexors and extensors. Flexors begin activity 20-30 msec. before F onset and cease the same interval before E^1 onset. Extensors begin activity 30-40 msec. after E^1 onset and cease just prior to F. All increase in intensity of activity with increased stepping speed and the duration of extensor activity decreases in correlation to E^{1-3} duration. The duration of flexor activity is nearly constant at all speeds. Differences in EMG waveforms and the occurrence of flexor-extensor coactivation indicate that within the overall pattern, individual muscles play specific roles during the step cycle. Such proposed roles include: 1) postural support, 2) production of powerful locomotor thrust, and 3) the precise placement of the forelimb needed for proper coordination of limb movements. (Supported by the McCandless Fund, Emory Univ.)

FARINA, J. A. and W. D. LETBETTER, Dept. of Anat., Emory Univ., Atlanta, Ga. 30322. *Organization of primary spindle afferents with respect to intramuscular branches of medial gastrocnemius nerve.*

It has been reported that the stretch reflex can be localized even within individual muscles (Cohen, *J. Physiol.* 16:272, 1953), but any specific arrangement of the neural elements consistent with this observation has yet to be demonstrated. Since a recent investigation of the motor innervation to medial gastrocnemius (MG) muscle of cat showed that the natural intramuscular branches of its nerve define isolated subdivisions of muscle (Letbetter, *Anat. Rec.* 178:402, 1974), it was of interest to know whether the Ia spindle afferent distribution is likewise compartmentalized. In the present study, separate intramuscular branches of MG nerve were surgically transected in both hindlimbs of two cats. Following a twenty-day survival period which allowed for complete sensory and motor axon degeneration within the branch, fresh-frozen serial sections of the entire MG muscles were made. Using the PAS staining method to outline regions of muscle fiber atrophy, and adjacent Van Gieson and silver sections to locate spindles and examine them for the presence of intact annulospiral endings, it has been determined that those spindles confined to a specific fraction of muscle receive

ABSTRACTS

their sensory innervation via the same nerve branch which supplies the surrounding extrafusal muscle fibers. Although it remains to be shown how any high degree of afferent-efferent affinity could be preserved centrally, there does appear to be at least a peripheral anatomical basis to support the concept of intramuscular reflex localization. (Supported by NIH Research Grant Number NS 11949 from NINCDS)

GOMEZ, MAXIMO M., Department of Anatomy, Bowman Gray School of Medicine, Wake Forest University, Winston-Salem, N. C. *The Peripheral Distribution of Rat Geniculate Ganglion Neurons.*

The geniculate ganglion (GG) of the facial nerve has been described as being comprised of cells that send their peripheral processes to the anterior tongue via the chorda tympani (CT) to the palate via the greater superficial petrosal (GSP), and to the external ear via the posterior auricular nerve. Neuron counts were made in 10 GG which contained from 1597 to 1866 neurons with an average of 1721 cells. Additionally, axons were counted with the electron microscope in one GSP; a total of 2376 axon profiles were seen. Of these 1703 or 72% were unmyelinated and 673 or 28% were myelinated; all of the profiles were less than 4.0μ in diameter. The sensory fibers in the GSP supply taste buds (TB) on the rat palate which average 125 TB per ipsilateral palate. By comparison, Beidler's CT study showed an average of 989 axon profiles in 4 CT, 60% of which were myelinated and 40% unmyelinated; the CT distributes to an average of 93 TB on the ipsilateral anterior tongue. Thus, there is a comparable number of myelinated fibers per TB in the CT (6.4) and GSP (5.5). The significance of the large differences between the numbers of unmyelinated fibers in the CT and GSP is unclear. The total number of axons in the GSP and CT together is greater than the number of GG somata. This peripheral fiber excess may be due to autonomic efferents or to branching of the peripheral processes of GG cells.

GREGOREK, J., M. MACHUGA, R. MAXA, and S. LAWS, Department of Biology, Gannon College, Erie, Pennsylvania. *An Attempt to Establish an Experimental Model Assessing the Relationship Between the Pineal Gland and Lymphatic Leukemia.*

There are reports of degeneration of the pineal gland in patients dying of cancer. In a significant number of cases of acute leukemia, there were found in the pineal gland large multi-located cysts, extensive neuroglial proliferation, and the presence of numerous Rosenthal fibers.

A study was undertaken to see if these observed pathological changes in humans were reproducible in experimental animals. This could provide the basis of a model for further experimental studies. A lymphatic leukemia was transferred to an inbred strain of mice known to be highly susceptible to the tumor. The animals were then sacrificed at various stages of metastasis of the malignancy in an attempt to correlate any morphological changes of the pineal body and stalk with the occurrence of the lymphatic leukemia.

No morphological changes were observed in the pineal gland and stalk of the experimental animals. Several possibilities exist which may explain the absence of results. The short life expectancy of the mice selected with this particular disease may not have been sufficient for the changes to occur. Younger animals should have been utilized since the changes in the pineal of patients dying of cancer were observed mostly

in individuals under the age of twenty. Also, the changes may have been, in fact, the result of the therapeutic attempts at the cure of the illness.

HAAR, J. L. and J. B. TINGELSTAD, Department of Anatomy, Medical College of Virginia, Richmond, Virginia and Department of Pediatrics, East Carolina University School of Medicine, Greenville, North Carolina. *A morphologic study of ventricular hypertrophy following aortic coarctation in the rabbit.*

Coarctation of the abdominal aorta was produced in 8 young rabbits (594-824 gm) to determine the effect on the myocardium as demonstrated by light and electron microscopy (Group 1). Seven rabbits (368-856 gm) served as controls (Group 2). Mean pressure differences across the coarctations in 6 rabbits ranged from 1 to 31 mmHg (1 mean and 15 mm Hg). The study periods ranged from 51 to 84 days. At necropsy Group 1 hearts had increased in size 2.32 gm/Kg of body weight, compared to 1.9 gm/Kg for Group 2. Measurements of ventricular wall thickness showed significant increase in the left ventricular wall in Group 1 specimens. Morphometric analysis of electron micrographs of the left ventricle, interventricular septum and right ventricle indicated an increase in the number of myofibrils and a decrease in glycogen in the left ventricular wall of Group 1 compared to Group 2. Other morphologic changes noted primarily in the left ventricles of Group 1 were pleomorphic mitochondria, and increased numbers and diameters of blood vessels.

HENDRY, S. H., J. W. SCOTT, D. B. NEILL, and R. L. McBRIDE. Departments of Anatomy and Psychology, Emory University, Atlanta, Georgia. *Topographic organization of the nigro-neostriatal projection in the rat.*

The projection of the substantia nigra to the neostriatum was examined in the rat with silver impregnation of terminal degeneration and with retrograde transport of horseradish peroxidase. In rats with unilateral lesions of the substantia nigra, staining with the Eager procedure demonstrated a projection from the medial pars compacta (PC) to the dorsomedial neostriatum and from lateral PC to lateral neostriatum. The medial PC projection was organized topographically with the anterior PC projecting to anterior neostriatum and posterior PC projecting to posterior neostriatum. Lesions of pars reticulata produced diffuse, moderately dense degeneration in the dorsomedial and ventrolateral neostriatum. Terminal degeneration was consistently less dense in the caudal neostriatum and in the anterior ventromedial neostriatum. Statistical analysis of argyrophillic granule counts from these brains shows that these observations are reliable. Preliminary analysis of horseradish peroxidase injections into the neostriatum of 10 rats confirm both the topographic nature of the nigro-neostriatal projection and the presence of a pars reticulata projection to the neostriatum.

HOLT, R. K. and G. S. SOHAL, Department of Anatomy, Medical College of Georgia, Augusta, Georgia. *Development of the Abducens nucleus.*

The avian abducens nucleus, unlike in mammals, is composed of a dorsomedially located main nucleus and a ventrolaterally located accessory nucleus. The main nucleus innervates the lateral rectus muscle and the accessory nucleus provides innervation for the 3rd lid and bursalis and quadratus muscles (Acta Pontif. Acad. Sci., 6:335-345, 1942). The

(Continued on page 30)

Editorials

WELCOME!!

The officers and members of the South Carolina Medical Association welcome the newly-appointed Editor of the Journal of the South Carolina Medical Association, Charles S. Bryan, M.D. Dr. Bryan was named Assistant Editor of the Journal in March of 1976, and news of his appointment and his curriculum vitae appeared in the March issue. Dr. Bryan has since made a valuable contribution to the Association in his capacity as Assistant Editor.

Upon the resignation of Edward E. Kimbrough, M.D., Dr. Bryan accepted the appointment as Editor, and the following Editorial presents his thoughts and expectations regarding the Journal.



THE JOURNAL — EXPECTATIONS

Why a state medical journal?

As Ed Kimbrough's legacy of manuscripts and correspondence settled into a distant corner of my cluttered desk, I pondered this oft-raised question. The next morning's mail did little to mollify these doubts: the pile contained more than a dozen periodicals, of which some were scholarly subscription journals but the rest those sleek, un-refereed publications commonly referred to as "throwaways." I visualized this scene recurring in physicians' offices and studies around the country, each day — an incredible bombardment of senses already numbed by the day's circuit of stubborn problems, fretful faces, chief complaints, anxious relatives, office paperwork, and the constant perturbations of Mr. Bell's invention. Surely, there are more than enough medical periodicals to fill the time available for their perusal.

Why, then, a state medical journal?

My own justification sprung from J. Bronowski's essay, *Science and Human Values*. Bronowski argues that "the society of scientists is

more important than their discoveries." The *attitude* outweighs the specifics. It is the *existence* of the attitude which matters.

In this vein, I suggest that the *existence* of the state medical journal far outweighs the sum of its articles. The state medical journal benefits even that physician who, for one reason or another, seldom opens its cover. It arrives as a monthly reminder that the South Carolina Medical Association possesses a *scientific identity*, that the association serves the scientific interests of its members as well as their other interests. It arrives as a reminder that there is a place for the practitioner to submit his observations for publication, should he choose to do so, to an editor who is likely to be sympathetic. And no matter what his field, he should find an article title on the cover of at least potential interest. Although he may postpone its reading, it is there, among the pile of postponements accumulating on his desk, available if needed, and, even if remaining unread, serving to support his *attitude* that he would like to remain well-informed.

To follow Edward E. Kimbrough and Joseph I. Waring, the immediate past editors, challenges one's abilities to say the least. We should pause a moment and reflect on what they and others have accomplished.

Begun as the *Transactions of the South Carolina Medical Association* in 1869, ours ranks among the oldest state medical journals in continuous publication. We believe that its quality is competitive with the journals of all but the largest states. The library of the new SCMA building displays the aggregate of the journal's bound volumes; it is an impressive sight. From them, one can glean a great deal of the medical history of our state and of our times. One is also impressed by the array of substantive articles which have appeared in *The Journal* over the years. In recent times, special supplements and symposia published by *The Journal* have won national recognition.

"I'm *amazed* how many request for reprints I've received for that article I wrote for the Journal of the South Carolina Medical Association," a colleague from Boston remarked recently. To publish one's article in our journal is not to relegate it to obscurity; for this I can vouch. For an article published this year, requests for reprints continue to come in, many from foreign countries and bearing colorful stamps which would envy a philatelist.

But the journal exists for the readers, not the authors. Therefore, a readership survey was conducted at the 1976 SCMA convention. We thank the respondents and aim to heed their suggestions.

Most respondents indicated that they would like to continue to see original scientific articles and commentary on social or economic issues. They also indicated their desire to receive association news, but the majority did not want to see the SCMA newsletter incorporated into the Journal. Fewer respondents wished to see case reports, but the lowest priority was given to historical and philosophical essays. This response may come as a disappointment to some of our readers, given the rich historical traditions of our state and of our medical association, but we respect it.

And the respondents provided practical, specific suggestions. One sought "more and better (more practical) articles on cardiology, diabetes, and arthritis." Another indicated that "the

Journal should reflect the needs and experiences of practitioners" and not be a "research or history reporting journal." Rather, it should "relate to everyday needs and experiences." Clearly, the readership desires information pertinent to patient care.

Information about the climate in which we practice was also sought. One respondent desired "access to conservative and liberal and consumer opinion without judgments made." Another wanted to be kept informed on "current legislative proposals that affect the practice of medicine." Input from the state agencies was also desired. One reader wanted "to know more about what the state can do . . . that would be of help to my patients."

Based on these responses, we have set priorities. These are indicated in the revised "Information for Authors," to be found elsewhere in this issue. There may be some readers and contributors who will dispute these priorities, and we welcome their thoughts. To the contributors, we feel a special obligation. We will seek to give all manuscripts a prompt review, to offer constructive criticism when revision is deemed appropriate, and to indicate with candor why some manuscripts might be considered unacceptable for publication. We continue to welcome comments from readers, both as criticisms of the Journal and as "Letters to the Editor" for possible publication.

Why the state journal? For the reader!

CHARLES S. BRYAN, M.D.

INFORMATION FOR AUTHORS

We encourage original articles of potential benefit and interest to the members of the South Carolina Medical Association.

PRIORITY FOR PUBLICATION: Based on survey of our readership, we give first priority to the following categories: (1) concise review articles of clinical topics; (2) case reports and other original observations by practicing physicians; (3) articles devoted to social, economic, or ethical topics; and (4) information from government and other agencies pertinent to the health care of South Carolinians.

Of lower priority, but still welcome for consideration, are articles in the following categories: (1) historical or philosophical essays, and (2) original scientific investigations of a specialized nature.

LENGTH OF ARTICLES: Concise articles of approximately 2500 words (approximately 8 typewritten pages, double-spaced) are preferred.

MANUSCRIPTS: These should be typewritten, double-spaced, and on one side of the paper. The title page should indicate the title, author(s), author's address, and academic appointments, if any. We request that the author's name not appear on subsequent pages, to permit "blind" review of the article, when desired by the editorial board.

ILLUSTRATIONS: These should be submitted as glossy, black-and-white prints no larger than a standard page; smaller prints are desired. Ordinarily, publication of 4 small illustrations or the equivalent accompanying an article will be paid for by The Journal. Any number beyond this must be paid for by the author except under unusual conditions. Illustrations should not be mounted, stapled, or clipped. On the back side of each illustration, the article title, figure number, and top of figure (but not the author) should be noted lightly in pencil. Legends for illustrations should be typed on a separate sheet of paper.

REFERENCES: These should be cited consecu-

tively in the text, in superscript, e.g., "Bone and colleagues² . . ." We encourage the use of a few, selected references, preferably including the more recent publications available in accessible journals. Ordinarily, no more than ten references should be used. When an extensive bibliography is desired, this can be accomplished at the author's expense or by noting that "additional references are available from the author upon request." Standard journal abbreviations should be used. The style for journal articles should be:

2. Bone, R. C., Francis, P. B., Pierce, A. K.: Intravascular coagulation associated with the adult respiratory distress syndrome. *Amer J Med* 61:585-589, 1976.

REVIEWING: All manuscripts will be reviewed by the editors. When indicated, manuscripts will be reviewed also by specialists in appropriate fields. When manuscripts are deemed inappropriate for publication, we will attempt to indicate to the author(s) our basis for such decisions, and to include criticisms if these might be useful to the author(s).

RESPONSIBILITY TO READERSHIP: We welcome criticisms of journal content by members of the South Carolina Medical Association. We also welcome participation in the reviewing process. Members who would be interested in reviewing, from time to time, in *blind* fashion (i.e., without knowledge of the author's identity), articles in their fields of interest submitted to the Journal for publication should make this interest known to the editor.

EDITORIAL CORRESPONDENCE: Manuscripts and other correspondence should be addressed:

The Editor
JOURNAL OF THE SOUTH CAROLINA
MEDICAL ASSOCIATION
Post Office Box 11188
Columbia, S. C. 29211

LETTER TO THE EDITOR

Dear Editor:

We would be grateful if you can announce the following: "For a biography of Dr. Alton Ochsner of Ochsner Clinic, New Orleans, opinions, evaluations, anecdotes, reminiscences, photos are needed. Photos will be carefully handled and returned. All material gratefully received by: Ira Harkey, Ph.D., 401 Metairie Road, 706, Metairie, Louisiana 70005."

Ira Harkey, Ph.D.

SOUTH CAROLINA PHARMACEUTICAL ASSOCIATION URGES PHYSICIAN COOPERATION

SCMA representatives met recently with representatives of the S. C. Pharmaceutical Association to continue their efforts to establish a better rapport between the two associations. Information of interest discussed at the meeting included the following important items.

The pharmacists described difficulties they have experienced by physicians writing more than one prescription on a single blank. It is recommended that each prescription be written on a separate blank to avoid confusion and eventual problems to the patient.

Some physicians are permitting other people in their offices to phone in prescriptions. If this continues, it could have very serious legislative complications in the future. Discontinuing this will reduce the possibility of illegally obtaining drugs and there is less chance of error.

"WHEN YOUR BACK FEELS GOOD YOU'LL FEEL GOOD"

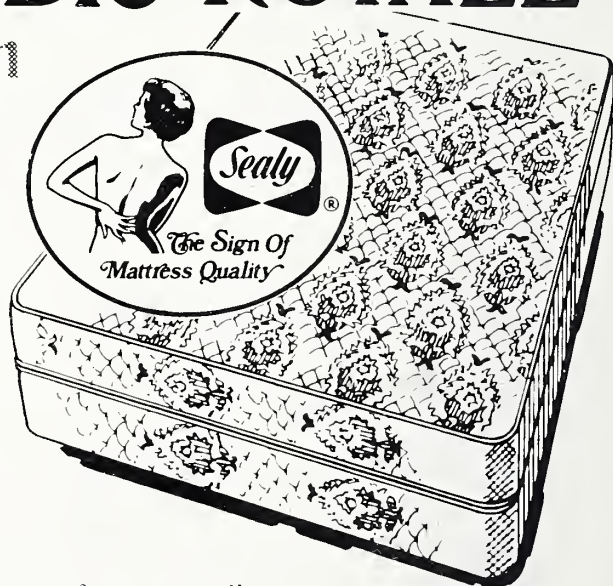
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President's Page



TO MY FELLOW PHYSICIANS:

This is being written to you on December 10, 1976 and will be read by you sometime in January, 1977. By then, you will have received your bill for SCMA dues. A few of you will elect not to continue your membership and a few will be undecided. The majority of us will continue to exercise our privilege of membership in the South Carolina Medical Association.

The requirements for membership are high and rigid. We have an exclusive organization, and of all the people in South Carolina, only less than three thousand can participate in our elite association. To me, membership is like being a Christian and a member of your church; they go hand in hand. It is inconceivable that a man of our profession would not willingly and voluntarily seek association with his peers in order to help fulfill our Hippocratic Oath.

Membership in your South Carolina Medical Association affords the individual physician a variety of services and advantages. These were explained in detail on the brochure which you received with your dues statement. Careful study of this brochure should prove to the individual physician that Association membership is well worth the investment of time and money. The House of Delegates of the SCMA has urged its leadership to increase its aggressive pursuit of the goals of the profession during the coming year, especially in the fields of professional liability, state legislation and staff services to the specialty societies. We hope you will agree with the House that the increase in your dues is needed and that the SCMA merits your membership and participation.

We are looking to each of you for continued support in 1977 as we work together within organized medicine to achieve our objectives. To do so, we must realize that the strength of an organization is directly related to its total membership and its financial resources. SCMA is just "coming of age," and without the efforts of all of us, we would not be practicing medicine as each of us is doing today.

J. D. Gilland, M.D.
President



RECENT CHANGES

federal register

THURSDAY, FEBRUARY 25, 1976
highlights

**Providing
Drug Information
to Physicians**

special report

**Malpractice
insurance:**

drug bulletin
Information of importance to general and cancer therapy practitioners
Editor: Robert D. Long
Managing Editor: Robert D. Long
Assistant Editor: Robert D. Long
Health Secretary of American Pharmacists
Editor: Robert D. Long

**Informational
Bulletin #433-76**

To:
Subject:

**National
Health
Insurance**

**Health care doesn't
need more red tape**

**Drug firms challenge
'MAC' rules**

**Drug
Substitution**

**The Common Denominator
of Health Progress:
RESEARCH**

Mailgram 2

THERE ARE A LOT OF PEOPLE GETTING BETWEEN YOU AND YOUR PATIENT.

Medicine today is in the spotlight, subjected to all kinds of scrutiny. Your control over patient therapy is being monitored, judged and occasionally abrogated, sometimes by unknown third parties.

The worry is that in the wake of this focus, the relationship between you and your patient will be weakened, without offsetting benefits. Consider three examples:

Drug substitution In most states, pharmacy laws, regulations or professional custom stipulate that your non-generic prescriptions be filled with the precise products you prescribe. But in the last five years, a dozen or more State laws have been changed, permitting the pharmacist in most cases to select a product of the same generic drug to fill any prescription.

Ironically, this dilution of physician control has taken place against a background of growing evidence that purportedly equivalent drug products may be inequivalent, since neither present drug standards nor their enforcement are optimal. In fact, the FDA itself says it has not enforced the same standards for hundreds of "follow-on" products that it had applied to the original NDA approvals. Thus physician control over patient therapy is being eroded with a risk that patients may be exposed to drugs of uncertain quality.

The major advertised claim for substitution is reduced prescription prices for consumers. Yet no documentation of any significant savings has been produced.

MAC Maximum Allowable Cost, MAC for short, is a Federal regulation designed to cut the Government's drug bill by setting price ceilings for drugs dispensed to Medicare and Medicaid patients. Unless the prescriber certifies on the prescription that a particular product is medically necessary, the Government intends to pay only for the cost of the lowest-priced, purportedly-equivalent,

generally-available product. The effect of the program may be that elderly and indigent patients will be restricted to products which someone in Washington believes are priced right. Practicing doctors will have little to say about administration of the program, since Government will have absolute authority to make its choices stick.

The drug lag The future of drug and device research depends upon a scientific and regulatory environment that encourages therapeutic innovations. The American pharmaceutical industry annually is spending more than \$1 billion of its own funds and evaluating more than 1,200 investigational compounds in clinical research. Disease targets include cancer, atherosclerosis, viruses and central nervous system disorders, among others. But there is a major barrier to the flow of new drugs to your patients: The cost of the research is more than ten times what it was, per product, in 1962; and whereas governmental clearance of new drug applications took six months then, it commonly consumes two years now.

The FDA needs adequate time, of course, to consider data. But it is equally clear that the present approval process contributes to needless delay of needed therapy. That's why the increased efficiency of the drug approval process is vital to all our futures.

If these issues concern you, we suggest that you make your voice heard—among your colleagues and your representatives in State legislatures and in Washington.

It could make a difference in your practice tomorrow.

Pharmaceutical Manufacturers Association
1155 Fifteenth Street, N.W., Washington, D.C. 20005



AUXILIARY PRESIDENT'S PAGE



Karin LaBruce reports to us on the upcoming HEALTH CAREERS FAIR to be held February 9 and 10, 1977 in Charleston.

Margaret Ellen Cline

The seventh annual HEALTH CAREERS FAIR will take place at the Gaillard Municipal Auditorium in Charleston on Wednesday and Thursday, February 9th and 10th from 10:00 a.m. to 4:00 p.m.

From its inception, approximately 13,500 junior and senior high school students from all over the state have visited the fair.

With the many advances and changes in medicine and health care, there is a great need for additional qualified people in the health field. The aim of the HEALTH CAREERS FAIR is to introduce the many health fields available to the young people of South Carolina. Approximately thirty allied health fields will be represented at the fair, consisting of actual working exhibits, students, and faculty.

Some of the highlights of the fair will be a guided tour of the Medical University, the Emergency Medical System Vehicle, the Papmobile, numerous exhibits such as Dental Assisting, Respiratory Therapy, and Nurse Anesthetists, a movie of surgery and other phases of university life, plus two outstanding exhibits from the AMA that tour museums throughout the country — "LIFE BEGINS," containing twelve fetuses embedded in plastic, showing development from four weeks to full term and "TRANSPARENT TWINS," two 5'7" transparent female models, one showing twenty-five organs of the body and the other the 200-bone skeleton and nervous system with tape recorded message describing functions.

Governor James B. Edwards is proclaiming the week of February 6-12, HEALTH CAREERS WEEK and is taping television announcements to publicize the event. Will you please do your part by asking the women of your medical community to arrange transportation for all interested youth.

We don't know how many have actually entered a health field due to their exposure at a HEALTH CAREERS FAIR, but we feel sure that they are numerous.

Mrs. Arthur M. LaBruce (Karin)
Health Careers Chairman, Charleston

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ACCREDITED BY THE J. C. A. H.

(Continued from page 16)

developmental pattern of the abducens nucleus, from day 7 of incubation through hatching, was studied in white Peking duck embryos (*Anas platyrhynchos*). The nucleus first becomes recognizable as a distinct cell mass, near the floor of the fourth ventricle, around day 7. The cells comprising the nucleus are small and contain little amounts of Nissl materials. The accessory nucleus can be observed in the process of ventrolateral migration on day 8 and reaches its final location on day 9 or 10. The maximum number of cells in the nucleus are present on day 9 which marks the peak of the proliferative activity. Preliminary data on cell counts indicate that a significant number of cells undergo degeneration after day 9. Cell death is of common occurrence in the developing systems and is particularly widespread in the nervous system (Biol. Rev., 26:59-86, 1951). Although the precise cause of cell death is still obscure several likely possibilities, however, will be discussed. As the development proceeds there is a progressive increase in the Nissl material and the size of the surviving cells.

HUBBARD, CHRIS, WALTER J. BO and WAYNE A. KRUEGER, Department of Anatomy, Bowman Gray School of Medicine, Winston-Salem, N. C. *The Effect of Silk, Copper and Polyethylene IUDs on Rat Uterine Epithelium: A Scanning EM Study.*

The purpose of this study was to compare the normal surface uterine epithelium with that which had been exposed to either polyethylene, silk or copper IUDs for two to five-week periods. Following decapitation, uterine sections were removed from areas at the site of the IUD and the contralateral horn, and were prepared for scanning EM. The control surface epithelium showed primarily numerous long microvilli while the IUD uteri displayed shortened, sparse microvilli with patches of RBCs and polymorpho-nuclear leukocytes. Regions of epithelium were completely barren of microvilli in areas near and under the specific IUDs. The changes were greatest in uteri containing copper and least in those containing polyethylene. Adhesive bridges spanned the space between the epithelium and silk IUD. Mucous-like plaques covered patches of epithelium in copper and silk-containing uteri.

Studies have shown that the copper IUD has the greatest anti-implantation effect. Silk and polyethylene follow in descending order. The findings of this study suggest a positive correlation between the variable physiological effect of the three IUDs and the ability to alter normal epithelial morphology. (Supported by USPHS HD 06210-05.)

KEHL, T. E., J. SCHOLER, T. G. OBLAK and T. H. ROSENQUIST, Department of Anatomy, Medical College of Georgia, Augusta, Georgia. *A quantitative analysis of the PAS reaction in young compared with old monkey kidneys.*

This study was undertaken to: (1) quantify any age-related change in PAS reactivity of the monkey kidney with an objective procedure and (2) to obtain data on the nature of the PAS-reactive substances. Juvenile and older mature male *Ateles* monkeys were killed and the kidneys were fixed with a solution of ethanol: formalin: acetic acid. After conventional paraffin embedment, 10 micron sections were mounted and placed in the following solutions: (1) 0.1 M Sorensen's buffer, pH 7.6; (2) 0.1% trypsin in 0.1 M Sorensen's buffer, pH 7.6; (3) Locke's solution; or (4) Locke's solution containing 250

I.U. of collagenase/CC. After incubation, sections were stained with PAS, then analyzed via photographic densitometry (Troyer and Rosenquist, J. Histochem, Cytochem. 23:941). No difference in total PAS-reaction was found, "Student's" t-test, young vs. old. However, trypsin removed significantly more of the PAS-reactive material from the young samples than from the old. Collagenase reduced the PAS intensity in the samples of young kidney, but raised the intensity in the old. It is concluded that (a) the younger samples showed more PAS-reactive non-collagenous protein, while (b) the older samples contained more collagen and/or more collagen-associated protein-polysaccharide of a PAS-reactive type. (Supported by NIH Grant #RR-05365)

KNIGHT, JANET S., Department of Anatomy, Medical University of South Carolina, Charleston, South Carolina. *Aminoglutethimide Phosphate-Induced Inhibition of Cortical Tissue in Chick Embryonic Gonads.*

Previous investigators have postulated that estrogen, produced by the embryonic gonads, is responsible for ovarian differentiation in birds. To test this hypothesis, aminoglutethimide phosphate (AGP), which has been reported to inhibit steroid synthesis, was administered to female chick embryos (1.0 mg on days 4, 7 and 10).

At the end of 12 days incubation, cortical thickness of left ovaries as well as the frequency of cortical nodules in the right gonads were significantly reduced when compared with controls. Although the Δ^5 -3-B hydroxysteroid dehydrogenase reaction on frozen sections of ovaries was not detectably different from that of controls, ultrastructural mitochondrial alterations were observed in some medullary secretory cells from AGP-treated embryos.

Male embryos treated with 1.0 mg. 5α -dihydrotestosterone on day five of incubation developed an ovarian cortex on the left testis. The additional administration of 1.0 AGP on days 4 and 6 inhibited the development of this cortex.

Considering the reported inhibitory effect of AGP on steroid synthesis, it is probable that the reduction of cortical tissue observed in the present experiments was due to interference with steroid synthesis of the medullary secretory cells.

LATTOUF, O., O'STEEN, W. K., and Y. TAKEI, Departments of Anatomy and Pathology, Emory University School of Medicine, Atlanta, Georgia. *Experimental sympathetic retinopathy.*

Injury to one eye in human subjects may lead to inflammatory responses and a loss of visual acuity in the contralateral, uninjured eye (Stockman, Am. Enc. Ophthalmol., 15:12369, 1920). The purpose of this report is to describe an animal model for sympathetic eye disease and to demonstrate the effects of injuring one eye on the opposite eye of albino rats. The influence of different types of optic and retinal injury will be discussed.

Our results have shown the establishment of specific pathological lesions in one eye several weeks after injuring the contralateral eye of a large number of rats. A quantitative evaluation of light microscopic sections of rat eyes indicated a significant reduction in the thickness of the photoreceptor and outer nuclear layers of the retina. Pyknosis of photoreceptor cell nuclei, which was observed in the contralateral eye, was accompanied by degeneration of some bipolar and ganglion cells. In several cases the response included retinal

ABSTRACTS

detachment with severe infolding, in addition to degeneration of the inner and outer segments of the photoreceptors.

LAWRENCE, I. E., JR. and H. W. BURDEN, Department of Anatomy, School of Medicine, East Carolina University, Greenville, North Carolina. *Studies on the role of nerves in ovarian function.*

The morphology of the intrinsic innervation of the mammalian ovary has been studied extensively in recent years using the Falck-Hillarp technique for catecholamine containing nerves, the acetylcholinesterase technique and the electron microscope. However, there is limited evidence regarding the function of ovarian nerves. In the present study, rats were unilaterally ovariectomized and the role of ovarian nerves in compensatory follicular growth and ovarian hypertrophy was studied. Hemiovariectomized rats were randomly assigned to one of five groups: controls, 6-hydroxydopamine (6-HD)-treated, vagotomized, 6-HD-treated plus vagotomized, pelvic parasympathectomy. Fifteen days later all animals were sacrificed and the amount of compensatory ovarian hypertrophy (COH) was calculated. Vagotomy and vagotomy plus 6-HD treatment interrupted estrous cycles and significantly decreased COH. In a subsequent study, the effects of vagotomy of FSH and LH levels was determined. Three groups of estrous rats were sham-operated, unilaterally ovariectomized, or vagotomized and unilaterally ovariectomized. Serum levels of LH and FSH were determined 5 and 24 hours after surgery. ULO caused a significant ($p < 0.05$) increase in FSH at 5 hours. Vagotomy significantly ($p < 0.05$) depressed FSH levels in hemiovariectomized animals to less than control values. Vagotomy also resulted in significantly ($p < 0.05$) decreased LH levels. There were no significant differences in hormone levels 24 hours after surgery. These results suggest a functional role for the vagus nerve in normal cyclic activity, COH, and gonadotrophin secretion.

LEMMON, V. P., H. S. ROSING, and K. V. ANDERSON; Dept. of Anatomy, Emory University, Atlanta, Ga. 30322. *Response patterns of cells in the dorsal lateral geniculate nucleus of the albino rat.*

W. Burke and A. Sefton (J Physiol. 187:201-212, 1966), using electrophysiological techniques, described two types of cells in the dorsal Lateral Geniculate (dLGN) of the albino rat: principal cells (P cells) and interneurons (I cells). In our study both electrical stimulation of the optic tract (OT) and photic stimulation were used to determine the response patterns of dLGN cells. The response patterns of P cells to photic stimulation were separated into three categories. E cells responded with a single period of *excitation*, that had a duration of 10-20 msec and had a latency of 20-30 msec. S cells responded with an initial period of *suppressed* activity followed by a return to spontaneous levels. The period of suppression lasted for 50-200 msec and had a latency of 30-100 msec. ES cells responded with a period of excitation followed by a period of decreased activity. The E and S periods were 20-30 msec and 150-650 msec in duration, respectively, and the latency to the E period was 20-50 msec. P cells had 1-5 spikes in the early discharge to a stimulus while I cells had 7-13. I cells were characterized by excitation followed by a period of decreased activity. The period of excitation of I cells had a slightly longer latency than that of P cells and had a duration of 30-40 msec. The response patterns of cells to OT and photic stimulation were similar. Differences will be discussed.

LUBARSKY, E. H. and I. J. MILLER, Department of Anatomy, Bowman Gray School of Medicine, Winston-Salem, North Carolina. *Chorda Tympani Fiber Distribution in the Rat Tongue.*

Observations were made on the gross rat tongue in order to deduce the branching chorda lingual nerve as it crosses under and penetrates through the genioglossus muscle of the tongue. By photographing the dissections of several rats in a general pattern of branching of the major bundles was characterized. The rat chorda lingual has seven major branches which enter the tongue: 2 posterior divisions, a generalized midregion division, and 4 anterior divisions.

The chorda tympani fiber population was studied by lingual transection and degeneration two weeks prior to sacrifice. The rat tongues were sectioned in three different planes to establish a three coordinate system for the passage of the nerve bundles through the tongue. The tissue was silver stained in order to conduct nerve fiber counts. The maximum fiber count for three rats was 600 nerve fibers of chorda tympani origin. From 10 mm anteriorly, the fiber population terminated at an even rate, plotting a constant slope. The graph demonstrated a uniform fiber termination density to the mucosa of the anterior 10 mm of the rat tongue. This would imply that the increased magnitude of the whole nerve response, found in the anterior half of the fungiform papillae population, is not due to increased fiber density.

McBRIDE, R. L., and K. D. LARSEN, Departments of Anatomy and Physiology, School of Medicine, Emory University, Atlanta, Georgia. *Descending Projections of the Feline Globus Pallidus.*

The medial pallidal segment (entopeduncular nucleus of the cat) and substantia nigra are generally considered to be the only basal ganglionic structures projecting to extra-basal ganglionic regions. The lateral pallidal segment is considered to have projections exclusively to the subthalamic nucleus and substantia nigra. We have demonstrated an additional projection from the lateral pallidal segment to the rostral pons in experiments employing: (1) antidromic activation and (2) retrograde transport of horseradish peroxidase. Extracellular and intracellular recordings were made from globus pallidus neurons while stimulating the rostral pons in the region of the pedunculopontine nucleus. Of 105 pallidal neurons studied, seven were antidromically activated with latencies of 0.5 to 2 msec, and were located in the caudal portion of the nucleus. When horseradish peroxidase was injected into or lateral to the pedunculopontine nucleus, labeled globus pallidus neurons were found primarily in the caudal third of the nucleus. In contrast with our observations on the entopeduncular nucleus, where there was no evidence for topographical organization of the pontine projection, it appears that the lateral pallidal projection to the pons originates primarily from the caudal portion of the nucleus.

McDOUGAL, H. D., H. SCHAPIRO and R. M. LUDEWIG, Departments of Anatomical Sciences and Surgery, Eastern Virginia Medical School, Norfolk, Virginia. *ADH effects on pancreatic exocrine flow in dogs subjected to acute hemorrhagic pancreatitis.*

In 6 dogs a closed-duodenal loop and a gastrojejunostomy were constructed and the abdominal incision closed. Eighteen hours later, after acute hemorrhagic pancreatitis was established, these dogs were anesthetized, their abdominal

ABSTRACTS

cavities opened and the fluid volumes and characteristics of the peritoneal cavities and the closed duodenal loops were noted. The minor pancreatic duct was ligated and the major pancreatic duct cannulated. An augmented pancreatic exocrine flow was established by the intravenous infusion of secretin, and then varying concentrations of ADH were injected intravenously. The pancreatic exocrine volume was measured at 5 and 10 minute intervals. Biopsies of pancreatic tissue were taken at the termination of each experiment and examined histologically. First, an intravenous infusion of 0.06 units secretin/kg/minute was needed to obtain a pancreatic exocrine secretion of 0.9 to 1.3 ml/5 minutes. This dosage of secretin was three times the amount needed to augment pancreatic exocrine secretion in control dogs. Second, a correlation was noted between the percentage inhibition of secretin-stimulated pancreatic exocrine flow collected at 5 and 10 minute intervals and the concentration of ADH administered. However, a marked difference was noted between secretin-stimulated pancreatic exocrine flow in control dogs and in dogs with acute hemorrhagic pancreatitis. The sensitivity of the exocrine pancreas to secretin and ADH was reduced by the acute hemorrhagic pancreatitis.

McGRAW, C. and B. McLAUGHLIN, Dept. of Anatomy, U.T.C.H.S., Memphis, Tennessee. *Synaptogenesis in the chick optic tectum.*

Synaptogenesis has been studied in the superficial layers of the rostroventral pole of the chick optic tectum at all days from embryonic day 6 through hatching, and in the 5 day hatchling. At embryonic day 6 and throughout development, desmosome-like junction or *puncta adhaerentia* are observed. Coated vesicles are also observed throughout development, some appearing in continuity with the plasmalemma adjacent to *puncta adhaerentia* and in the vicinity of the postsynaptic densities of developing synaptic contacts. Previous investigators (Cantino and Sisto-Daneo, *Experientia* 29:85, 1973) have suggested that the earliest synapses in the chick optic tectum are formed at embryonic day 11. In this study immature synaptic contacts are observed in the superficial layers of the optic tectum as early as embryonic day 7. It is possible that some of these early forming synapses are retinotectal projections. The synaptic contacts contain only a few vesicles and are primarily axodendritic, however, other contacts are also seen in the early embryo in which cell bodies and dendrites are presynaptic to developing profiles. After eye enucleations at embryonic day 3, these types of contacts are still observed in the early embryo suggesting that many of the early synapses are intrinsic to the optic tectum. (USPHS Grants 5T01-GM00202 and RR-05423.)

McNEILL, M. E. and N. M. SMITH, Departments of Anatomy and Pathology, School of Medicine, East Carolina University, Greenville, North Carolina. *The morphology of the rat pineal subsequent to chronic physical stress.*

Factors other than environmental lighting can also influence pineal function. Miline *et al.* (Hormones, 1:321-331, 1970) demonstrated that the pineal exerts a protective influence in cold-stress, and an increase in melatonin synthesis has been reported in physical stress (Lynch *et al.* P.N.A.S., 70:1704-1707, 1973). If the pineal plays a role in homeostasis, a morphological study following chronic physical stress may offer clues regarding the presumed secretory mechanisms of the organ.

Male rats were divided into two groups of 12; unstressed, which remained sedentary in their cages, and stressed, which were subjected to periods of running on a treadmill for 9 weeks. After perfusing the animals with glutaraldehyde, twelve pineals were dissected free, weighed and prepared for ultrastructural study. Twelve were left in situ, blocked with a core of the surrounding brain, embedded in paraffin, sectioned in frontal, horizontal or sagittal planes for staining with Bodian of Klüver-Barrera method for light microscopic investigation.

The main emphasis of this report will deal with differences in pineal morphology as affected by stress, especially at the ultra-structural level.

MOORE, PAMELA J. Department of Anatomy, Medical College of Georgia, Augusta, Georgia. *The Effect of an Intrauterine Device on the Castrate and Castrate-Hormone-Treated Hamster Uterus.*

The purpose of this study was to determine if the proposed estrogen-like action of the intrauterine device (IUD) could be elicited in IUD-containing uteri of castrate and castrate-hormone treated hamsters. The number and degree of estrogen-like responses elicited differed among treatment groups. Previously observed changes in wet weight and morphology were confirmed. In all treatment groups, IUD-containing uteri displayed hyperstainability, increased fibroblastic activity, increased clumping of chromatin material, fewer microvilli and increased numbers of neutrophils and mast cells. Prominent nucleoli in epithelial cells were observed in experimental uteri of some groups. Quantitative changes in sulfated mucopolysaccharides were also observed. Previous reports (Bo, *et al.*, 1969 and Laumas and Yadava, 1969) have indicated that many of these changes noted in experimental uteri are similar to changes evoked by estrogen. The present data confirms these reports and in addition demonstrates distinct cellular changes in experimental uteri that indicate probable changes in metabolic activity epithelial and connective tissue cells. These metabolic changes may be the cause of IUD-containing uteri not responding normally to exogenous hormones.

OBLAK, T. G., T. ROSENQUIST, J. SCHOLER and T. E. KEHL, Department of Anatomy, Medical College of Georgia, Augusta, Georgia. *Some effects of diabetes on the collagen of the dermis.*

This study was undertaken to determine the effects of diabetes on collagen and PAS-reactive protein polysaccharides. Whole skin was removed from the plantar surface of the amputated feet of diabetics and non-diabetics, matched for age and sex. The tissue was embedded in paraffin and sectioned at 10 microns. Mounted sections were placed in: (1) 0.1 M Sorensen's buffer, pH 7.6; (2) 0.1% trypsin in 0.1 M Sorensen's buffer, pH 7.6; (3) Locke's solution; or (4) 250 I.U./CC collagenase in Locke's solution. Incubated sections were stained with PAS and analyzed according to the quantitative procedure of Troyer and Rosenquist (J. Histochem. Cytochem. 23:941). Samples of diabetic dermis were significantly more intensely stained, "Student's" t-test. Collagenase digestion produced a significant increase in the intensity of stain in the non-diabetic but not in the diabetic.

When unincubated sections were stained with a silver impregnation procedure for collagen and the results were quantified (Rosenquist and Rosenquist, J. Histochem.

ABSTRACTS

Cytochem. 22:104), the diabetic tissues contained significantly more silver.

It was concluded that: (1) diabetes leads to an increase in collagen and in PAS-reactive protein-polysaccharide; and (2) the collagen and/or the protein-polysaccharide is chemically different from that of the non-diabetic. (Supported by NIH Grant #RR-05365)

PAULL, W. K. and H. MARTIN, Department of Anatomy, Medical College of Georgia, Augusta, Georgia. *SEM, LM, TEM and Autoradiography on the same tissue specimen.*

In an effort to study the up-take and transport mechanisms of bioactive molecules within the endocrine hypothalamus we have developed a new modification of the Wickham and Worthen technique. In addition to SEM, LM, and TEM analysis, we have found that we could localize labelled compounds by means of autoradiography in a single sample.

Cannulae (23 ga) were stereotactically placed into the lateral cerebral ventricle of adult rats and 48 hours later $10\mu\text{l}$ of H^3 -dopamine ($1\mu\text{Ci}/\mu\text{l}$) were infused. Animals were sacrificed 5' and 15' following DA infusion by cardiac perfusion of 2% glut./2% paraform. fixative. The median eminence was dissected out. Following CPD and gold coating it was evaluated with a SEM. After SEM the tissue was immersed in propylene oxide, embedded in Araldite, and sectioned @ 1μ & 60μ . 1μ sections were then prepared for autoradiography by dipping the slides in Kodak NTB-2 emulsion (emulsion thickness $\approx 2\mu$) and exposed for 6, 8 or 10 weeks. After exposure the emulsion was developed with Dektol. The slides were stained with methylene blue and azure II.

This technique has enabled us to evaluate large surface areas with SEM, subsequently section the tissue for LM and TEM, and localize a labelled neurotransmitter all within the same piece of tissue.

PEARL, G. S. and K. V. ANDERSON, Dept. of Anatomy and Div. of Neurosurgery, Emory University School of Medicine, Atlanta, Georgia. *Transmedian innervation of feline canine teeth.*

Anderson and Pearl have reported physiological (Exp. Neurol., 44:35-40, 1974) and anatomical (J. S. Car. Med. Assn., 70:71, 1974) evidence showing that feline teeth receive a transmedian innervation. The purpose of this investigation was to quantify this transmedian innervation, using the cobalt, cut-axon technique (G. S. Pearl and K. V. Anderson, Physiol. Behav., 15:619-622, 1975) and the examination of chromatolysis in the trigeminal ganglion following tooth pulp extraction.

Following exposure of a canine tooth pulp to cobalt chloride, cobalt sulfide could be precipitated in cells of the ipsilateral and contralateral trigeminal ganglia of all 5 cats studied. Cobalt-impregnated cells were more frequently observed in the ipsilateral ganglia than in the contralateral ganglia. Impregnated cells were generally small or medium-sized (i.e. less than 30μ), but some large cells ($>40\mu$ in diameter) also contained the cobalt sulfide precipitate. Ipsilateral and contralateral trigeminal ganglia from 4 experimental and 2 control cats were examined following canine tooth pulp extraction. After subtracting the average control counts, the mean number of cells projecting to an ipsilateral canine tooth was 199 ± 12.4 , while the mean projecting to a contralateral canine tooth was 138 ± 11.5 . These values differ

significantly from each other and from control values ($p = .014$, Mann-Whitney U Test).

RHOADS, JACKSON E., JACK A. HORNER, and DALE E. BOCKMAN, Department of Anatomy, Medical College of Georgia, Augusta, Georgia. *Effect of bile on the mucosa of rat pancreatic duct.*

A common outlet of biliary and pancreatic ducts may sometimes lead to retrograde flow of bile through the pancreatic duct. Bile injected retrogradely through the pancreatic duct of experimental animals has been shown to produce pancreatitis. The present study was conducted to determine the possible effect of bile on the mucosa of the pancreatic duct in young adult rats. Approximately 0.2 ml of dog bile was injected retrogradely into the pancreatic duct through a cannula. The duct was ligated and the animal maintained under anesthesia for 15 or 30 minutes. Ducts were prepared for study by LM, TEM, and SEM using standard methods. Uninjected or saline injected animals served as controls. Animals receiving bile exhibited disruption on intercellular connections and absence of an epithelium from areas of the duct. In some areas, the basal lamina appeared to be relatively intact. In other areas, underlying connective tissue elements were exposed. Absence of duct epithelium could severely affect regulation of fluid transport and could allow penetration of extraneous material into the pancreas. (Supported by NIH Grant RR-05365.)

RICHMAN, E. A., M. E. MICHEL and F. P. SCHULTER, Department of Anatomy, University of Maryland School of Medicine, Baltimore, Maryland; CORRUCINI, R. S., Smithsonian Institution, Washington, D. C. *Sex Determination by Discriminant Function Analysis.*

To devise a method for accurately sexing skeletons, Thieme and Schull (1957) took measurements of seven postcranial traits from black skeletons of known sex. With linear discriminant function analysis they obtained 98.5% accuracy.

Our objective is to assess the accuracy of their method in the hands of other investigators on the same population (Terry Collection Blacks) and its applicability to other populations of the same and different races (Howard University Collection Blacks, Terry Collection Whites). We examined variability resulting from sex, and race, side, and investigator techniques using multiple discriminant function analysis which permits all the above sources of variation to be considered at once.

With our data, sex accounts for a predominant fraction of the total variation among samples. Race accounts for most of the remaining variance. Samples separated by both side and investigator techniques only negligibly. However, the application of Thieme's and Schull's statistical methods to our sample did not yield results which fully support their suggestion that their techniques "are of special value for determining the sex of negro skeletal material, and of general value for specimens from other racial groups." To achieve the same degree of accuracy as they reported, different discriminant values were needed for all but one of our samples.

ROSING, H. S. and K. V. ANDERSON, Dept. of Anat., Emory Univ., Atlanta, Ga. *A study of the location and central projection zone of trigeminal ganglion neurons that innervate feline canine teeth.*

ABSTRACTS

This study was designed to determine the location of cells within the trigeminal ganglion (TG) that innervate the canine teeth and to determine the central projection areas of these cells in the descending trigeminal nucleus (DNV). Retrograde transport of horseradish peroxidase (HRP) was used to identify the cells with afferent projections to a single canine tooth, while autoradiographic techniques were utilized to demonstrate the central projection zones of these cells within the DNV.

Following the injection into a single canine tooth pulp, HRP was demonstrated in cells of both the ipsilateral (IL) and contralateral (CL) TG of 6 adult cats. IL ganglia consistently contained about twice as many labeled cells as did the CL ganglia. Cells labeled from lower canine injections were scattered throughout the mandibular division of each ganglion, while cells labeled from upper canine injections were found throughout the maxillary division of each ganglion.

The injection of ^3H -leucine into a single canine tooth of 4 adult cats revealed a bilateral projection zone of afferent fibers within the DNV. Projection areas were seen predominantly from the caudal one-half of subnucleus interpolaris to the rostral one-half of subnucleus caudalis. Although the density of silver grains was heaviest IL to the injection site, high levels of silver grains were also found in the CL DNV.

SHEAR, C. R., Department of Anatomy, School of Medicine, University of Maryland, Baltimore, Maryland. *Effects of sarcomere shortening on myofibrillar development: An ultrastructural study.*

The number of striated skeletal muscle fibers does not increase once differentiation is complete. The postnatal increase in total contractile mass is due to fiber growth. During postnatal development, muscle fibers increase 100-fold in cross-sectional area. The increase in fiber size is the result of an increase in myofibril number (Shear and Goldspink, J. Morph., 1971). The myofibrils incorporate new contractile protein, double their size and then divide longitudinally into two daughter myofibrils (Shear, Ex. Med., 1975). In chick muscle fibers both phasic and tonic myofibrils, grow and divide. The suggestion that sarcomere shortening is the cause of myofibrillar splitting has been investigated. Whole muscle shortening was restricted by immobilizing the wings, in newly hatched chicks, at rest length. The fine structure of immobilized fibers, from chicks 1 to 29 days old, differed from corresponding control muscles. Instead of the normal phasic myofibril arrangement, the immobilized fibers had large irregular myofibrils of the tonic fiber type. The myofibrils of phasic fibers, immobilized and then freed for 24 hrs, showed a large number of centrally disrupted and splitting myofibrils. The results of this study indicate that phasic muscle fibers must contract isotonicly in order to split longitudinally. (Supported by NIH Grant AM 18385)

SOHAL, G. S., Department of Anatomy, Medical College of Georgia, Augusta, Georgia. *Embryonic cell death in normal and peripherally deprived trochlear nucleus.*

The development of trochlear nucleus under normal conditions and following removal of the superior oblique muscle was studied, from day 7 of incubation through hatching, in white Peking duck embryos. Unilateral optic primordium along with the surrounding mesoderm were removed on day 4. There is a normally occurring loss of about 50% of the cells in the control nucleus. Magnitude of cell death in the experi-

mental nucleus varies from 85% death to a virtual absence of the cells at hatching. Two morphologically distinct cell types, e.g., large well-differentiated, and small relatively undifferentiated cells are present in the control and the experimental trochlear nucleus during the early period of morphogenesis. As the development proceeds there is a progressive decrease in the relative number of the small cells. It is possible that the large cells may differentiate early and their neurites establish connections with the superior oblique muscle; small cells on the other hand may be slow in development and do not form the trochlear nerve. It can be hypothesized that during normal development the survival of the large cells may be due to the establishment of their appropriate peripheral connections while the death of the small cells is related to their failure to send out axons. Additional hypoplasia in the experimental nucleus might be due to failure of the growing axons to make contacts with the periphery.

SPAGNOLI, D. B. and S. W. CARMICHAEL, Department of Anatomy, West Virginia University School of Medicine, Morgantown, W. Va. *Organogenesis of the Adrenal Medulla in the Opossum (Didelphis marsupialis virginiana).*

At birth, the mesonephric kidneys and non-distinct adrenals of the opossum are located caudally in the abdominopelvic cavity, medial to the gonadal primordia. The mesodermal adrenal anlage is evident between and ventral to the kidneys. Cortical cells are mitotically active, but there are no medullary cells present. The gross form of the adrenal is distinct by day 7. At this time masses of chromaffin cells are located medial to the cortical anlage, and individual cells are scattered among cortical cells. By day 9, the pyramidal-shaped adrenals are medial to the kidneys. Some chromaffin cells are located centrally; others are dispersed within the gland. Additional chromaffin and ganglion cells are located medial to the gland, not surrounded by cortex. By day 12, chromaffin cells are concentrated centrally in cords about the sinusoids. The adrenal of the 14 day-old pouch young is about 1 mm long. The adrenals and kidneys are adjacent to the diaphragm. Cells within the adrenals are arranged so that cortical zones are recognizable. Radially positioned straight sinusoids traverse the cortex to reach the tortuous sinusoidal bed within the medulla, which is now formed mostly by a dense accumulation of chromaffin cells. All components of the adult gland can thus be identified at this time.

SPURLOCK, BEN O. and J. H. ARRINGTON III. Departments of Anatomy and Pathology, Medical College of Georgia, Augusta, Georgia. *Adult Insulinoma — A Case Study.*

Ultrastructural studies of two cases of insulinoma showing nesidioblastosis have recently been reported. The first was a congenital insulinoma reported by Charles Carney (Arch. Pathol. Lab. Med. 100, 352-356, 1976) and the second was a pancreatic adenoma in a neonate by Beverly B. Dahms, *et al.*, (Am. J. Clin. Path. 65, 462-466, 1976). In both cases light microscopic observations revealed areas of nesidioblastosis throughout the tumor. Electron microscopic observations were undertaken to establish the primary cell line of the tumor and the site of origin of the lesion. In both cases it was determined that the tumors exhibited a pattern of beta cell proliferation of ductal epithelial origin.

We would like to report our findings on a 70 year old white

ABSTRACTS

male who was recently admitted to the Eugene Talmadge Hospital, Augusta, Georgia, in a profound hypoglycemic state. Laboratory methods established that the hypoglycemia was a result of increased insulin production. The patient had a celiac axis arteriogram which demonstrated a blush in the head of the pancreas. The patient was taken to surgery, and a single solitary 2 cm non-encapsulated pancreatic tumor was removed. Histopathologic and ultramicroscopic studies revealed an islet cell tumor of beta cell origin. The patient has subsequently been discharged from the hospital and at last report exhibited normal blood sugar values with no treatment. Light and electron microscopic observations on this case will be presented.

HEYL G. TEBO, Department of Neurobiology and Anatomy, University of Texas at Houston, Medical School and Dental Branch, Houston, Texas. *Anomalies of the Skull Base Affecting Basion.*

Basion is often utilized as an important reference point in skull growth studies as well as in orthodontic diagnosis. One type of anomaly affecting this point is occipitalization of the atlas.

Ten skulls exhibiting various types of fusion are illustrated and cephalometric tracings of each are demonstrated to show how the position of basion varies. These skulls cover an age range from 4 years to late adulthood. As this condition occurs in about 1% of the population, a patient may present showing puzzling findings unless this type of anomaly is considered.

TURNER, J. E. and K. A. GLAZE, Department of Anatomy, Bowman Gray School of Medicine, Wake Forest University, Winston-Salem, North Carolina. *The early stages of Wallerian degeneration in the severed optic nerve of the newt, Triturus viridescens.*

We have previously described the events of Wallerian degeneration in the severed newt optic nerve between days 2-14 post lesion (Anat. Rec., 181:267-286, 1975). The present investigation deals with our observations during the very early stages of degeneration (6-48 hours post lesion) with particular emphasis on the fate of unmyelinated axons.

The initiation of Wallerian degeneration in the severed optic nerve of the newt was very rapid and intense. Significant degeneration of nonmyelinated axons was observed as early as 6 hours after lesion (h.a.l.) and was almost complete by 48 h.a.l. Initial degeneration of nonmyelinated axons began in "extracellular digestion chambers" formed between burgeoning ependymoglia processes. The remaining fragments and debris were later phagocytized by surrounding ependymoglia processes.

Many axons of myelinated fibers have degenerated as early as 6 h.a.l. However, the overall population of myelinated axons degenerates at a much slower rate than nonmyelinated ones, for many of them appear intact as late as 48 h.a.l.

Some myelin sheaths show significant signs of degeneration by 6 h.a.l. Indeed, by this time a number of myelinated fibers have completely degenerated leaving only large vacuolated spaces in the nerve parenchyma. Swelling and vacuolization of the sheath are among the earliest signs of myelin degeneration.

The ependymoglia cell response to optic nerve lesion is many fold and dramatic. By 6 h.a.l. there are signs of burgeoning ependymoglia processes which begin to resemble scar formation (gliosis) by 48 h.a.l. There is also convincing

morphological evidence for a principal phagocytic role of ependymoglia cells during the early stages of optic nerve degeneration.

WERTZ, R. L., D. J. DONALDSON, and J. M. MASON, Departments of Anatomy and Pathology, U.T.C.H.S., Memphis, TN. *Effects of x-irradiation on mitosis and DNA synthesis during limb regeneration in the adult newt.*

Left front limbs of adult male newts were given 2,000 rads of x-irradiation. Four weeks later both forelimbs were amputated. Histological sections of x-rayed limbs in the early stages show morphological dedifferentiation similar to controls, however a blastema fails to appear. Normal and x-rayed limbs were scored for colchicine-blocked metaphases during the initial 12 days after amputation. Mitotic activity was unaffected in irradiated epidermis but was significantly reduced in x-rayed internal tissues.

Incorporation of ^3H -thymidine into DNA was then evaluated for the internal limb tissues. In uninjured limbs irradiation stimulated low levels of DNA synthesis which increased only slightly after amputation. Thus, four days after amputation ^3H -thymidine incorporation was significantly lower than in limbs regenerating normally. Since others have shown that limb denervation at the time of amputation blocks subsequent mitosis yet allows normal DNA synthesis in internal tissues, we conclude that x-irradiation and denervation prevent cell division of potential blastemal cells by different mechanisms. (Supported by U.S.P.H.S. grant GM 00202.)

YOUNKER, T. D., F. S. WALDROP, H. PUCHTLER and G. R. POLLARD, Department of Pathology, Medical College of Georgia, Augusta, GA. *An investigation into relations between dye structure and affinity for type I and type IV collagens.*

Previous investigations in this laboratory showed differences between staining properties of various collagen fibers and basement membranes. Ten to twelve years ago these observations could not be correlated with chemical data; it was still generally assumed that all human collagen had the composition $(\alpha 1)_2\alpha 2$. However, in recent years chemists identified at least four distinct types of collagen. Tendon-type collagen is designated type I and collagen of basement membranes is termed type IV.

Paraffin sections of Carnoy- or methacarn-fixed human kidneys were treated with aqueous solutions of phosphomolybdic acid and counterstained with sulfonated acid, direct and mordant dyes.

Sulfonic acid groups did not play a major role in dye binding by basement membranes; affinity for type IV collagen decreased with increasing number of sulfonic acid groups. But type I collagen, e.g. in the capsule and in the adventitia of arteries, was nicely colored. Fibers formed in glomerulosclerosis behaved like type I collagen. Replacement of benzene by naphthalene rings or enlargement of other resonators enhanced dye binding by type IV collagen. Apparently, non-ionic bonds are essential for staining of type IV collagen. (Supported by USPHS research grant HL 12147 from the National Heart and Lung Institute.)

Congratulations to Joseph C. Ross, M.D., a pulmonary internist from Charleston, S. C., who was recently elected to the office of President-Elect of the American College of Chest Physicians.

*

Congratulations to Sompong Kraikitpanitch, M.D. from Florence, and Samuel D. Reid, Jr., M.D. from Spartanburg, who were both honored this fall by admission to the Membership category of Fellowship in the American College of Physicians.

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MEETING ANNOUNCEMENTS

South Carolina specialists in internal medicine and related medical fields will take part in a three-day scientific meeting March 11-13 at the Myrtle Beach Hilton, Myrtle Beach, S. C. For further information, contact Roy A. Howell, Jr., M.D., 210 Market Street, Bennettsville, S. C. 29512.

*

The Seventh Annual Aspen Radiology Conference will be held February 28-March 4, 1977 with registration February 17 at the Aspen Institute for Humanistic Studies, Aspen, Colorado. Further information may be obtained from Emanuel Salzman, M.D., Conference Chairman, Division of Radiology, Beth Israel Hospital, Denver, Colorado 80204.

*

The University of Tennessee Center for the Health Sciences will present a symposium on Endocrine Causes of Menstrual Disorders at the Hilton Inn, Memphis, Tennessee, March 16-18, 1977. The Symposium is approved for 20 elective hours by the American Association of Family Practitioners and 30 cognates by the American College of Obstetricians and Gynecologists. For information contact:

Division of Continuing Education, U.T.C.H.S.
800 Madison Avenue, Memphis, Tenn. 38163.

*

A Postgraduate Seminar on Emergency Medicine: Clinical-Radiological Correlation, will be presented March 18-20, 1977 at Pointe West Resort in Phoenix, Arizona. For information write: Austin R. Sandrock, M.D., 2601 East Roosevelt, Phoenix, Arizona 85008.

MEETING ANNOUNCEMENTS

The William S. Hall Psychiatric Institute announces its next Continuing Education Program, "Psychiatric Emergencies in Medical Practice," to be held at Hilton Head, South Carolina, March 31, April 1 and 2, 1977. This program is of special interest to family practitioners, internists and psychiatrists. Registration fee is \$50.00, with deadline for registering March 1, 1977. For further information contact Joe E. Freed, M.D., P. O. Box 119, Columbia, South Carolina 29202.

*

The Department of Mental Health and the AMA will jointly sponsor a Seminar on "The Impaired Physician: Answering the Challenge," February 4-6, 1977 at the Hyatt Regency Hotel in Atlanta, Ga. Registration fee is \$50.00. For further information write Department of Mental Health/AMA, 535 N. Dearborn Street, Chicago, Illinois 60610.

*

The second annual Suncoast Trauma Seminar, a continuing education course for physicians and residents, will be held March 9-11, 1977 at the University of South Florida College of Medicine, Tampa, Florida. Fee for physicians is \$125; for residents, \$75. For advance registration forms, write Dr. Roger T. Sherman, Box 16, Tampa, Florida 33612.

*

The 129th Annual Meeting of the South Carolina Medical Association will be held April 28 - May 1, 1977 at the Myrtle Beach Hilton, Myrtle Beach, South Carolina. Plans are already underway to make this the most successful meeting in the history of SCMA. Advance registration form is included below and should be completed and returned to: SCMA, P. O. Box 11188, Columbia, S. C. 29211.

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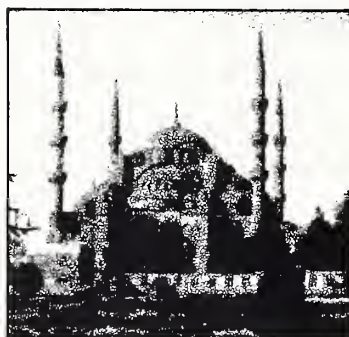
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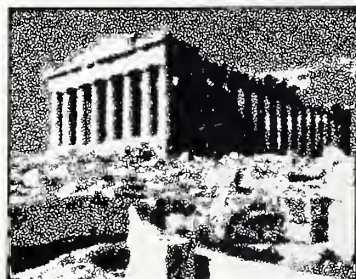


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SUPERIOR MESENTERIC ARTERY SYNDROME: A CASE REPORT

JOHN C. STOWELL, M.D.*

JOHN E. BOTTSFORD, JR., M.D.**

Obstruction of the third or fourth part of the duodenum can occur as it passes between the superior mesenteric artery anteriorly and the aorta and vertebral column posteriorly. This was first described by Rokitansky in 1861.¹ There have been an increasing number of case reports in the literature since 1962. This report presents the superior mesenteric artery syndrome in a patient with ankylosing spondylitis. Management of this unusual problem is discussed.

CASE REPORT

A 26-year-old white male presented with post-prandial lower abdominal cramps, accompanied by abdominal distention and bilious vomiting. These episodes had occurred intermittently over a four-year period with a recent increase in frequency and severity.

Physical examination revealed a slender 114-pound male individual. There was straightening of the lumbar spine with a limitation of flexion and extension. No other abnormalities were noted.

Laboratory data including CBC with indices, electrolytes, SMA-12, chest x-ray, barium enema and EKG were normal. The anti-nuclear antibody and rheumatoid factor were negative.

The IVP was normal but ligamentous calcification of the spine from T₁₁ to L₄ and partial ankylosis of the sacroiliac joints was revealed on the abdominal roentgenogram. Gastrointestinal barium series (Figure I) revealed dilatation of the proximal duodenum to the transverse portion, and no malrotation was noted.



FIGURE I

Gastrointestinal barium series revealed dilatation of the proximal duodenum with obstruction at the transverse portion.

* Surgery Resident, Spartanburg General Hospital, Spartanburg, South Carolina 29303.

** Reprint requests to: Acting Director of Education-Surgery, Spartanburg General Hospital, 101 East Wood Street, Spartanburg, South Carolina 29303.

SUPERIOR MESENTERIC ARTERY SYNDROME

At laparotomy the duodenum was noted to be dilated down to its transverse portion where the superior mesenteric artery crossed. A bypass duodenojejunostomy was performed through the transverse colon mesentery. In addition, lysis of the ligament of Trietz was done. The postoperative course was uncomplicated and his symptoms were entirely relieved.

DISCUSSION

The superior mesenteric artery originates from the abdominal aorta at the level of the first lumbar vertebra. The angle between the superior mesenteric artery and aorta is variable and ranges from 20 to 70 degrees (average angle 41 degrees).² As the duodenum passes between the root of the superior mesenteric arterial trunk anteriorly and the aorta and vertebral body posteriorly, it can be impinged. Especially, if the narrow angle is associated with an abnormally high positioned duodenum by a short ligament of Trietz^{3,4} or a superior mesenteric artery originating lower than usual.

The symptom most frequently reported is recurrent vomiting.⁵ Other common symptoms are upper abdominal distention, epigastric pain after meals, and weight loss. Discomfort may increase while the patient is supine or standing. Relief may be obtained by positioning the patient on his left side or into the knee chest position.⁴

Diagnosis is confirmed by upper gastrointestinal series. Radiographic criteria for diagnosis are: 1. Duodenal dilatation, the most prominent feature, 2. abrupt obstruction of the duodenum in its transverse portion, and 3. to and fro duodenal peristalsis.⁶ Selective biplanar superior mesenteric arteriogram can be of value in borderline cases,⁴ by showing the superior mesenteric artery to aortic angle and the distance from the superior mesenteric artery to the aorta at the duodenal crossing.^{7,3} The superior mesenteric artery syndrome has been reported to develop in association most commonly with application of plaster casts in the patients with spinal disease (called "cast syndrome"), asthenic body build and weight loss for any reason,⁸ emaciating secondary to burns, immobilization,^{9,6} peptic ulcer¹⁰ and treatment of scoliosis.² In one-third of the cases reported since 1962 no predisposing cause was determined.⁴

This patient has severe ankylosing spondylitis, which in addition to his asthenic body build,

most likely contributed to developing the superior mesenteric artery syndrome. The resulting deformities of the spine apparently contributed to the narrowing of the superior mesenteric artery angle, as angulation of the spine with reduction of the superior mesenteric artery-to-aortic angle is reported in scoliosis patients. Bisla and Louis⁹ found the superior mesenteric artery syndrome to be most common after cast application in patients with spinal disease.

Conservative medical management consisting of multiple small feedings, anticholinergics, prone or knee chest position and sedation has been reported successful in certain cases.^{6,9} Most cases will need operative treatment and medical therapy should not be prolonged if no relief is obtained. The obstruction has been reported to be severe enough to cause patchy gangrene of the stomach.

In most series operative management has been superior to medical management. Most commonly duodenojejunostomy or lysis of the ligament of Trietz has been performed. Bypass duodenojejunostomy is the most appropriate procedure with the best success record.⁵ Recently, extensive mobilization of the duodenum and jejunum has been used in children with chronic symptoms with promising results.⁸

SUMMARY

A case report of duodenal obstruction from the superior mesenteric artery syndrome is presented. Typical symptoms are vomiting, postprandial epigastric distress, and weight loss. The cause of obstruction is the narrowed angle between the superior mesenteric artery and the aorta and conditions which appear to further close this angle. Clinical diagnosis is confirmed by upper gastrointestinal series, with occasional need for biplanar arteriography. Bypass duodenojejunostomy is the procedure of choice for relief of symptoms. □

ACKNOWLEDGEMENT

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The Journal of the South Carolina Medical Association

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MYCOBACTERIUM MARINUM INFECTIONS
OF THE HAND: REPORT OF
TWO CASES IN COASTAL SOUTH CAROLINA

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Infections of the hand always produce a perplexing problem and are often inadequately treated initially. *Mycobacterium marinum* usually produces a chronic, granulomatous lesion that is disabling and associated with exposure to a marine environment. They are often misdiagnosed and require aggressive surgical and medical treatment. The increasing incidence of reported hand infections caused by other than the common strains of microorganisms^{1, 2, 3, 4} should alert the physician to become familiar with the unusual organisms endemic to his area. The following cases of *Mycobacterium marinum* give credence to the need for the coastal physician to be familiar with this organism.

CASE REPORT

CASE 1: W. H., a 59-year-old Caucasian male, salt water fisherman, was referred in January, 1975, for a painful swelling of the right middle

finger. Symptoms began in December, 1974, and although he repeatedly scraped and cut his hands at work, no specific laceration was recalled as initiating the condition. He had previously been treated with two steroid injections and penicillin; however, the condition continued to progress.

At the time we first saw W. H., he was afebrile and presented a swollen, fusiform, tender right middle finger that was boggy to palpation. There was local erythema but no lymphangitis or proximal lymphadenopathy. His lungs were clear to percussion and auscultation and the remaining physical was normal.

The patient was admitted to the hospital January 27 for tenosynovectomy and diagnostic evaluation. Tine test and PPD were nonreactive, SMA₁₂ revealed slightly elevated cholesterol and a glucose of 101. Urinalysis, CBC, and chest x-ray were normal. An x-ray of the involved hand demonstrated no osseous involvement. At surgery, the synovium and surrounding tissues

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were brownish and filled with cloudy fluid but no pus or necrotic tissue was found. Cultures were taken at the time of surgery with the patient having been on no antibiotics for two weeks. Cultures for anaerobes, aerobes, fungus, and acid-fast bacillus revealed *Mycobacterium marinum*. Biopsy of the involved tissue revealed a heavy infiltration with lymphocytes, plasma cells, histiocytes, fibroblast and a few multinucleated giant cells. No necrosis was observed. Special tissue stains for bacteria and fungi were negative and the Kinyowns method for acid-fast bacilli was negative. However, the fluorescent Auramin Rhodamin stain was positive for acid-fast bacilli.

The patient was placed on Ethambutol and Rifampin but due to severe tinnitus and vertigo, he has changed to Ethambutol and INH. A secondary post surgical infection was treated with Dicloxacillin for a short time. Treatment with INH and Ethambutol was continued for one year with slow resolution of symptoms. At 1½ years later, there is no evidence of recurrence.

CASE 2: D. P. is a 24-year-old, right handed, Caucasian male who was first seen on January 15, 1976, complaining of pain and swelling of the right hand for one week. The patient is an outdoor machinist at the Navy Yard and experienced repeated trauma and abrasions to his hands. Exposure to cold weather increased his symptoms. He denied having any episodes of fever or chills. Examination revealed swelling and tenderness of the dorsum of the right fifth metacarpal-phalangeal joint and the proximal interphalangeal joint. Range of motion was only minimally decreased and there was no local lymphangitis or proximal lymphadenopathy. X-rays of the right hand revealed soft tissue swelling only. A diagnosis of nonspecific synovitis secondary to trauma was made and the area was injected with corticosteroid. The patient was placed on oral Butazolidin alka® and advised to soak his hand.

Five weeks later the patient was seen again with no change in his condition and he was again injected with corticosteroid. Four weeks following the second injection D. P.'s symptoms were improving; however, on April 12, 1976, his hand was markedly swollen and exquisitely tender with a decrease in range of motion of the fifth finger. The patient was admitted to the hospital where repeat x-rays of his right hand were negative. Urinalysis and complete blood count were

normal. The fifth finger was opened surgically and cultures for anaerobes, aerobes, fungus, routine and rapid growing acid-fast bacillus revealed *Mycobacterium marinum*. Synovial biopsy demonstrated chronic active granulomatous disease with fibrinous degeneration but no caseation necrosis. Tissue stains for bacteria and acid-fast bacillus were positive for *Mycobacterium*.

D. P. was placed on INH and Ethambutol. On his last office visit, May 10, 1976, the incision was healed and there was minimal local inflammation and tenderness. His range of motion has returned to normal.

Mycobacterium marinum (m. balnei) is an atypical acid-fast bacillus clinically and histologically indistinguishable from *Mycobacterium tuberculosis*. It is a rapid-growing photochromogen that turns yellow in sunlight. *M. marinum* is a rapid growing organism at a temperature of 32°C on Lowenstein-Jensen medium but grows slowly or not at all at 37°C.^{5, 2, 6}

Mycobacterium marinum was first isolated in 1926⁷ from dead fish and was later recognized by Linell and Norden in 1954.⁸ Since that time, numerous case reports have appeared in the literature.^{9, 10, 2, 11, 6, 12} *M. marinum* occurs both in poikilotherms and humans.¹³ Its natural habitat includes fresh water, salt water, coral, barnacles, beaches, swimming pools and aquariums.^{10, 7, 13, 2, 14, 15}

In man, *Mycobacterium marinum* produces a chronic and progressive granulomatous lesion that may ulcerate but that is characteristically confined to the cutaneous structure.^{2, 6, 16} It has been isolated from a prepatellar bursa,¹² and though underlying lymphatics are not involved routinely, the infection may be sporotrichoid in nature.^{10, 17} It is often mistaken for gout, rheumatoid arthritis or a pyogenic infection. Histologically, it presents a picture ranging from a subacute inflammatory reaction to a granulomatous lesion. There may be fibrinoid necrosis and giant cells of both foreign body and Langhans type, but caseous necrosis is noticeably absent. The acid-fast organisms may be seen within the tissues using Kinyowns method for acid-fast bacilli or fluorescent Auramin Rhodamin stain.^{5, 2, 6}

Mycobacterium marinum demonstrates a wide variety of responses to the usual chemotherapeutic agents used for *Mycobacterium tuberculosis*.⁶

¹⁶ A combination of INH, 300mg per day, Ethambutol, 1000mg per day, and Triamcena-
lon, 16mg three times a day, has been reported to
produce rapid remission.¹⁸ Barrow and Hewitt
have found Trimethaprim and Sulfamethoxazole
effective treatment.¹⁹ Attempts at sensitivity
testing are often difficult to obtain but most au-
thors agree cutaneous lesions are best treated
with surgical debridement and a combination of
INH, Ethambutol, Rifampin or Cycloserine.^{19, 2,}
6, 16, 17

COMMENTS

M. marinum infections have been found re-
peatedly in coastal areas and are frequently mis-
diagnosed. The presence of a chronically in-
flamed skin lesion in a person living in a coastal
area should alert the physician to include a cul-
ture for rapid growing acid-fast bacillus in his
work-up. Because of the chronic nature of this
infection, and the protracted medical regimen
required for treatment, a combined surgical and
medical approach produces the best results. □

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ANESTHESIA AND THE HYPERTENSIVE PATIENT

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Physicians of multiple disciplines — cardiology, internal medicine, and family practice — may be asked to see surgical patients in consultation with regard to preparation for, and recovery from, anesthesia. One of the most frequent areas for concern is the management of the hypertensive patient being treated with anti-hypertensive medication. The purpose of this paper is to acquaint those physicians who see surgical patients in consultation with the current trend in anesthetic management of the hypertensive patient.

This current trend of continuing antihypertensive therapy in the peri-operative period is based on two observations: (1) Studies have shown that there is no appreciable difference in the incidence of hypotension during anesthesia in hypertensive patients whether their medication has been discontinued or not.^{1,2} (2) Extreme and sudden elevations in blood pressure may occur during the induction of anesthesia, laryngoscopy and endotracheal intubation, maintenance of anesthesia, or in the post-operative period resulting in acute cerebral hemorrhage, congestive heart failure, serious arrhythmias, pulmonary edema, or further impairment of renal function. Abrupt withdrawal of antihypertensive drugs, particularly clonidine (Catapres®), may increase the tendency for acute hypertensive crises to occur.³

Three specific areas of patient care must be provided in order to prevent catastrophic episodes of hypotension or hypertension during the peri-operative period.

1. In the pre-operative period, pre-existing electrolyte imbalance and diminished plasma

volume must be corrected. Early congestive heart failure or any condition which predisposes to it must be appropriately treated. We are concerned that known hypertensive patients may have been placed on drug therapy unnecessarily or without proper diagnostic evaluation. Drug therapy should be adjusted to control blood pressure within suitable limits. Patients who have not been previously known to be hypertensive should be thoroughly evaluated and appropriate therapy instituted to control blood pressure prior to anesthesia and surgery.

We recommend gradually discontinuing propranolol 12-24 hours prior to surgery unless its use is mandatory for control of blood pressure, angina, or arrhythmias. If it cannot be discontinued, it should still be tapered to the lowest effective dosage while the patient is under close medical supervision.⁴ Abrupt withdrawal has precipitated severe angina and myocardial infarction in susceptible patients.⁵

2. Intra-operatively an anesthetic technique must be carefully chosen and individualized for each patient. Certain anesthetic drugs and techniques predispose to hypotensive episodes. Potent inhalational anesthetic agents such as halothane or enflurane depress myocardial contractility and produce vasodilatation. Spinal and epidural anesthetic techniques reduce peripheral vascular resistance and venous return to the heart. Judicious administration of intravenous fluids, decreased anesthesia depth, and proper positioning of the patient for increased venous return will correct most episodes of hypotension. A knowledge and understanding of the specific actions of the antihypertensive drugs will allow the anesthesiologist to use an appropriate vasopressor (Table I) in the occasional patient who does not respond to the above regimen. Fortunately, a complete loss of catecholamine stores

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does not occur in the majority of patients on antihypertensive drugs.⁶ Vasopressors which cause the release of catecholamines (labelled indirect in Table I) may still provide support in these patients. Ephedrine in 12.5mg or 25mg increments administered intravenously or intramuscularly is our drug of choice. In the presence of a significant loss of catecholamine stores, vasopressors (labelled direct in Table I) which act independently of these stores will still be effective. Dopamine or epinephrine infusions are our drugs of choice in this situation. Isuprel and/or atropine may be used in low heart rate situations. Norepinephrine is generally utilized only as a last resort. Treatment for the beta-blocked heart (propranolol therapy) has previously been described.⁷

3. The patient must be appropriately monitored in the peri-operative period to insure adequacy of oxygenation and tissue perfusion. In addition to the usual monitoring of heart sounds, pulse, blood pressure, electrocardiogram, and temperature, invasive techniques may be indicated. These would include catheters for urine output, central venous or Swan-Ganz catheters for right and left heart filling pressures, and direct arterial catheters for blood gas analysis and constant blood pressure monitoring. Vigilance and support must be maintained post-operatively where many cardiovascular and respiratory catastrophes occur.

SUMMARY

Anti-hypertensive therapy may be continued in the peri-operative period if the pathophysiology of hypertension and the pharmacology of sympathomimetic and antihypertensive drugs is understood.⁸ Consultants can be most helpful in vigorous support in the pre-operative and post-operative periods. Anesthetic risk and choice of anesthetic agents or techniques is best determined by the anesthesiologist. Adherence to these principles will reduce the risk of anesthesia and surgery in patients with hypertension. □

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TABLE I. SYMPATHOMIMETIC DRUGS

<u>DRUG</u>	<u>ALPHA ACTIVITY</u>	<u>BETA ACTIVITY</u>	<u>MAJOR MODE OF ACTION</u>
Vasoxyl (Methoxamine)	++++		Direct
Neosynephrine (Phenylephrine)	+++	+	Direct
Levophed (Norepinephrine)	++++	++	Direct
Aramine* (Metaraminol)	++	++	Indirect
Intropin** (Dopamine)	++	+++	Direct
Epinephrine (Adrenalin)	++	++++	Direct
Ephedrine* (Ephedrine)	+	+++	Indirect
Wyamine* (Mephenteramine)	+	+++	Indirect
Methadrine* (Methamphetamine)	+	+++	Indirect
Isuprel (Isoproterenol)		++++	Direct

* Actually cause the release of epi/norepinephrine stores in the body.

** Primarily stimulates dopaminergic receptors in dosage < 2 ug/kg/min, beta receptors in dosage > 2 < 10 ug/kg/min, and alpha receptors in dosage > 10 ug/kg/min.

HEALTH CARE EXTENSION IN SOUTH CAROLINA*

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INTRODUCTION

Rural health care projects have become fashionable, whereas health care extension systems are an anathema. The result has been a jigsaw puzzle with a lot of the pieces missing. The purpose of this paper is to review recent efforts at health care extensions in South Carolina, and to offer a few suggestions.

EXTENSION POLICY

Governor John C. West, in the course of his State of the State Address, in January 1973, said:

"... I propose a two-phase approach to this problem ...

"Phase One is an intensive program designed to upgrade the delivery of family health care, particularly in those non-metropolitan areas affected more seriously by health care deficiencies. Specifically, I recommend:

"(1) ...

"(2) The establishment in each of the state's 10 regional planning districts of health care units comprised of physicians, paramedical personnel and other staff required to extend services into those rural areas now most seriously affected by existing deficiencies. The setting-up of such a program will require that the State Board of Health work in concert with hospital and medical organizations to provide outreach services in the state's less populous areas."

Shortly thereafter, Robert Toomey, at the Governor's request, set up a number of task forces on Medical Education and Provision of Health Services, one of which was focused on Healthcare Extension Services. Drawing on the knowledge and experience of public and private healthcare extenders from all over South Carolina, this task force reached consensus on

certain principles which it recommended through Mr. Toomey to the Governor and which were accepted by the Governor's Office and by his advisory Health Policy and Planning Council.

The following three years, 1973/76, saw the slow and painful hammering out of fiscal and administrative arrangements along other lines, as the result of which some projects got under way in 1976. The issues involved in this delay are highly instructive.

ADMINISTRATIVE OPTIONS

In implementing the health care extension policy, a number of variables emerged, which proved to be so important that they are worth recording.

One concerned the role of the district health planning agencies. The coexistence of two schools of thought soon became evident. The one, represented by the Governor's Council, saw an opportunity for these agencies to evolve into active planning and coordinating bodies, that would even bring into existence new public or private local operating agencies if the existing providers were unable to meet the need. The other, represented by the State Department of Health, wished to keep the district health planning agencies in a subordinate advisory role, and to centralize decision-making.

With this was linked the role of a central health agency. The Governor's Council thought of itself as formulating general principles and monitoring district adherence to them. The State Department of Health thought of itself as not only formulating general principles but also as applying them in deciding which projects to support.

There was difference of opinion on where initiative was to come from. The decentralizers saw it as coming from district health planning agencies which would locate consumer needs and devise governmental or non-governmental means of meeting them. The centralizers saw it as coming from governmental providers or sponsors who would submit competing requests for aid.

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There were different views of local government participation. One way, state aid was thought of as being conditional on local government effort, organized through the Councils of Government with which most district health planning committees were associated. The other way, municipal governments were encouraged to apply for grants-in-aid, without either counties or municipalities having to give evidence of organized local community effort.

Back of these differences in the perception of roles, lay the control over the allocation of the State's incentive grants. The decentralizers in the Governor's Office and on his Council worked out formulas for allocating grants to districts, whereas the State Department of Health stood for giving its Board a free hand, except insofar as the state political process might condition its judgment through the Budget and Control Board. One participant remarked that money was the independent variable: all others were dependent.

The project-by-project centralizers turned out to be in a stronger position than the systematic planning decentralizers. The whole idea of trusting local people to plan to spend state money according to their own best judgment was contrary to state tradition, in spite of contemporaneous acceptance of federal general revenue sharing with even less strings attached. The district health planning agencies had not been taught and encouraged by the State Department of Health to develop a positive planning capability. The whole system of project grants as developed by federal agencies had habituated administrators to competitive bidding rather than to comprehensive planning to meet people's needs. The State Board of Health had statutory standing and legislative strength, whereas the Governor's Council had neither. The Governor's right-hand-man, who had a foot in each camp as chairman of both the State Board of Health and the Governor's Council, did not seem to mind too strongly how things got done, provided something was accomplished.

HEALTHCARE OUTCOMES

The process of promoter bidding, district health planning review and recommendation, State Board of Health decision and Budget and Control Board review, produced an interesting pattern of results when viewed both by geo-

graphical area and by public sponsor (See Table in March issue).

In the Piedmont, which had long benefited from federal Appalachian aid to other aspects of healthcare delivery, grants went to small municipalities for building or operating offices where medical and paramedical groups could make primary care more accessible to ambulatory patients, and became complementary to out-of-state governmental and non-governmental aid for which they also bid.

In the Pee Dee area, as part of a state policy of building up a regional medical center, a large allocation was made to the construction program of a private hospital that had no house staff to provide care to patients without doctors and that was located in a county that made below-average effort to reimburse providers for care to patients unable to pay their bills.

In the central Three Rivers area, there was an unusual degree of collaboration between county hospitals, district public health offices and district health planners.

In the Palmetto Coast area, consumer-run neighborhood health services were eclipsed by public health districts and equipment for small hospitals.

The State Board of Health's district public health departments got more grants than any other category of provider or promoter. They were mostly for physical facilities rather than services, but in half the cases were for satellite centers.

Small municipalities, which had been the principal lobby for rural physician service, fared next best, getting construction, remodeling or operating grants that would help them in contracting with providers of primary care.

An occasional county hospital got a grant for an outpatient clinical team, emergency room or intensive care.

In a few instances there were interesting pieces of coordination and cooperation between providers. County hospital and physicians worked together in Williamsburg County in a unique outreach project. Public health case-finding and county teaching hospital clinics also came together in the Central Midlands for care of high-risk pregnancies.

Three of the four consumer promoted community health centers of the Palmetto coastal region, which were technically non-governmen-

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tal, got no support; the fourth got it indirectly through a municipal sponsor. The outreach and educational efforts of community action programs, which also were mainly non-governmental, also got no support.

What the net result has been is difficult to measure, because the State has not yet provided for any methodical overall evaluation of effectiveness and in any case the program voted in 1973 did not actually begin its one-year operational life until mid-1976. A performance audit would, however, be highly desirable, since the problem of what comes next is serious in the case of those projects for which the start-up grants went into the launching of continuing services rather than the building or remodeling of physical facilities, especially since experience has taught us that universal health insurance as the universal panacea is not necessarily just around the corner.

ADDRESSING THE PROBLEM

At the very moment when District Comprehensive Health Planning has collapsed and Area Health Systems Planning has not yet got going, federal and non-governmental agencies have rushed in, in support of this provider or that, to get a piece of the action and to congratulate themselves that they have no plan and no

policy, do not know where we are heading, and would not dream of initiating new models of healthcare delivery.

The list of benefactory programs (below and incomplete) is startling. It includes the usual demonstration projects that are multifunded or demonstrate that they are non-multiplicable.

Perhaps the time has come to apply birth control to rural healthcare projects. All we need is to practice a few well known community development principles:

- no grant except to contribute to implementation of an area, district or community plan;
- no grant without a cost-sharing effort by the organized community; and,
- no grant without evaluation of results.

And at the same time we might do worse than plan healthcare extension along lines that have been classical for thirty years:

- first, to make sure that everyone really has an effective access-point to the healthcare system;
 - next, to make sure that appropriate levels of supporting services are systematically developed; and,
 - thirdly, to reach out to make sure people really know how to use the services that are theirs.
-

S. C. RURAL HEALTH PROGRAMS

(additional to county hospitals, public health departments, private physicians)

Community Action Programs 1964	- Federal (OEO: local)
Neighborhood Health Centers 1966	- Federal (OEO: central)
Family Health Centers 1970	- Federal (HEW)
Health Extension 1973-77	- State (DHEC)
National Health Service Corps	- Federal (HEW)
Family Practice Residencies 1974	- State (MUSC)
Health Underserved Rural Areas 1976	- Federal (HEW)
Rural Health Initiatives 1976	- Federal (HEW)
Rural Health Delivery 1976	- Non-governmental (SCMA)
Rural Practice 1975	- Non-governmental (Robert Wood Johnson Foundation)

CURRENT STATUS OF LABORATORY LICENSURE IN SOUTH CAROLINA

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Until very recently, the development of regulations applicable to medical laboratories in South Carolina has been deferred pending Congressional action on federal laboratory licensing legislation. The impetus to State regulation of medical laboratories has been primarily a result of federal action in this field. Much of the information in this report is extracted from the reports of the Congressional committees on the "Clinical Laboratory Improvement Act of 1976" which was passed by the Senate but failed to pass the House in the rush for final adjournment last year.

Congress is aware that the American health care system relies heavily upon the services of clinical laboratories to analyze and provide information on samples of body tissues or fluids to enable physicians and other health professionals to better diagnose and determine proper therapy for their patients. With advances in medical technology, a growing number of conditions can be detected through laboratory testing of body specimens, and health professionals are becoming increasingly dependent on accurate laboratory test results in order to properly treat their patients.¹

The cost of the health care system's dependence upon clinical laboratory services is large. In 1971, 2.9 billion tests were performed at a cost of \$5.6 billion. By 1975, nearly 5 billion tests were conducted by over 65,000 clinical laboratories at a cost of \$12 billion. By 1980, it is estimated that 8.8 billion tests will be done for \$15 billion.²

With the enactment of the Medicare program in 1965, the Federal government took its initial regulatory action in the laboratory services area. Standards were developed for laboratories which were not located in hospitals accredited by the Joint Commission on Accreditation of Hospitals (JCAH) to receive Medicare funds. The HEW Secretary was authorized to contract with State agencies to certify compliance with the standards. JCAH accredited laboratories were automatically certified as having met the requirements of the law. Current Medicaid regulations require laboratories to be certified in accordance with Medicare criteria or equally stringent standards.²

The Clinical Laboratories Improvement Act of 1967 (CLIA-67) was the second major Federal effort to assure quality laboratory medicine. It required licensure and inspection of laboratories engaged in interstate commerce, exempting those accredited by the College of American Pathologists (CAP) and those solely an adjunct of the treatment of patients by health professionals or for determining insurance eligibility. JCAH accredited laboratories are not exempt because the HEW Secretary decided that the standards of JCAH are not as stringent as those of CLIA-67.³

Of 7000 hospital-based laboratories in the Medicare or Medicaid programs, 4400 are in JCAH accredited hospitals. A recent report of the Social Security Administration was critical of the JCAH survey process as to its superficial nature and the lack of expertise in laboratory matters of most JCAH inspectors.³

The 3000 independent intrastate laboratories and the 2600 non-JCAH accredited hospital-

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LABORATORY LICENSURE IN S. C.

based laboratories in the Medicare or Medicaid programs are inspected and certified by State authorities as being in compliance with Medicare standards. In view of evidence of fraudulent activities and lack of quality performance uncovered in other States, it cannot be said that current inspection and certification activities on the part of the States is universally adequate.⁴ No such discrepancies have been reported in South Carolina, however.

The Center for Disease Control licenses about 950 interstate laboratories under CLIA-67.⁵ The nearly 5000 intrastate laboratories which do not receive pay under Medicaid or Medicare and the 50,000 to 80,000 laboratories located in physicians' offices are subject to no Federal requirements at this time. Some are subject to State regulation but only a handful of States have enacted effective statutes for clinical laboratory regulation.⁶

Prior to Medicare, New York and California initiated programs which resulted in significant improvement in the quality of laboratory performance. New Jersey, Pennsylvania, and Kentucky have enacted significant laboratory legislation. 26 States have no mandatory program applicable to laboratory performance and only five States have comprehensive programs requiring laboratories to adopt internal quality control programs, employ personnel with prescribed qualifications, take part in proficiency testing programs, and properly maintain facilities, instruments, and records.⁶

Federal authority for laboratory regulation has been fragmented in that the Center for Disease Control in Atlanta is responsible for CLIA-67 under the Assistant Secretary for Health while the Bureau of Health Insurance of the Social Security Administration in Baltimore is responsible for the Medicare regulations under the Assistant Secretary for Human Development.⁶ It was not until 1975 that efforts were made to coordinate these regulatory programs and the House Committee believes the chances of an effective interagency agreement are virtually nil.⁷

CLIA-67 has had a positive impact on the quality of interstate laboratories. A National Bureau of Standards study in 1973 showed that 7.6% of microbiology tests in interstate laboratories were in error while other large laboratories had an error rate of 16.7% and Medicare and Medicaid

certified laboratories had an error rate of 26%. The Center for Disease Control estimates that 15% of all laboratory test results are in error.⁸

The bill passed by the Senate on April 29, 1976 (S. 1737) would have

(1) extended mandatory licensure to all laboratories (except those of Federal agencies other than the HEW Department) soliciting and accepting specimens;

(2) authorized licensure of laboratories meeting quality assurance standards;

(3) authorized promulgation of standards and regulations to assure the quality, accuracy, and precision of laboratory testing;

(4) authorized delegation of the Federal authority to states which implement laboratory quality assurance programs at least equal to the federal program.;

(5) authorized a single Office of Clinical Laboratories to carry out the law;

(6) authorized exemption of physicians' office laboratories where physicians file an affidavit including a description of the qualifications of non-physician laboratory personnel, the quality and type of tests conducted, and the score of proficiency testing examinations taken by such personnel;

(7) authorized waiver of personnel standards in laboratories located in rural hospitals with less than 100 beds and development of specific job related proficiency tests for personnel in rural hospital laboratories;

(8) authorized use of private, nonprofit entities for inspection and proficiency testing services;

(9) authorized revocation of a laboratory's license where it found that the laboratory engaged in kickbacks, bribes, or false billing practices;

(10) prohibited discrimination by any laboratory against any employee who has become involved in allegations that the laboratory is in violation of the law.⁹

The House bill which was approved by the Interstate and Foreign Commerce Committee in September 1976 differed from the Senate bill in the following respects:

1. It would have required the HEW Secretary to set national standards for all clinical laboratories examining materials derived from the human body for purposes of diagnosis, prevention or treatment of disease or for assessing human health;

LABORATORY LICENSURE IN S. C.

2. It would have required all clinical laboratories to comply with the national standards with the following five exceptions:

i. Intrastate laboratories would have two years grace before compliance:

ii. Rural laboratories serving only hospitals and health professionals in a rural area which could not meet the personnel qualifications would have two additional years grace provided they assured action to train or employ qualified persons;

iii. Laboratories located in the office of and operated by physicians, dentists, or podiatrists in which the only tests or procedures are performed by such practitioners. Upon application, exemption would have also been given to laboratories located in the office of and operated by up to five licensed physicians, dentists, or podiatrists in which all tests are in conjunction with the treatment of their patients and routine tests. The application for exemption would include the number and type of tests conducted, qualifications of personnel who participate in testing and collection and transmission of specimens, the quantity and type of tests and procedures done by such personnel with the type of proficiency testing participated in and the scores received plus a description of the quality control programs in effect in such laboratories;

iv. Laboratories solely engaged in research would have been exempted;

v. Laboratories solely testing for the purpose of writing insurance contracts would have been exempted.

3. It would have provided that persons soliciting or accepting a specimen for an unlicensed laboratory would have been fined up to \$10,000 and/or imprisoned for not more than one year and owners or operators who billed falsely under Medicare or Medicaid would be fined not more than \$10,000 and/or imprisoned for up to three years.

4. It would have amended the Social Security Act to provide that reimbursement for laboratory services outside a hospital could not include any commission, finder's fee, or excess rental; to authorize a State to use competitive bidding in the purchase of laboratory services for Medicaid; to require that laboratories bill Medicare at the lowest rates for the same services; and to provide that violations of the antifraud provisions of titles XVIII and XIX are felonies with a maximum sen-

tence of three years.

5. Unless a State was delegated the primary enforcement responsibility by the HEW Secretary on the basis that its standards, procedures, and penalties were at least equal to the Federal, it could not adopt or continue requirements, other than for personal licensing, applicable to clinical laboratories.¹⁰

Action in South Carolina in the field of laboratory licensure has been stimulated and strongly influenced by the national events described thus far. With the advent of Medicare, the Department of Health and Environmental Control contracted with the Social Security Administration to survey all providers of services for compliance with the conditions for participation in Medicare. The Department has had eleven years experience in applying the national standards set for participation of laboratories independent of hospitals and those in non-JCAH hospitals. This activity has proceeded smoothly and harmoniously over the years. During FY 1976, we certified 15 independent laboratories and 14 laboratories in non-JCAH hospitals.

Returning to the national scene, the passage of Medicare induced the College of American Pathologists to abandon its stand against state licensure of laboratories and in December 1965 its Committee on State Legislation began work on a model State licensure Act. This model act was modified in 1969 after the passage of CLIA-67 and several State licensing laws. Based on this model, bills were drafted by interested persons applicable to South Carolina and on June 19, 1972, the Governor signed Act 1387 providing for licensing and regulation of medical laboratories in South Carolina by the Department of Health and Environmental Control.¹¹ The Act established an advisory committee to assist the Board of Health and Environmental Control in matters pertaining to licensure and standards, rules, and regulations and to consider grievances and appeals from laboratories on the enforcement of the licensure standards and rules. The advisory committee includes the chairman, who is a professional member of the staff of the Department, two doctors recommended by the S. C. Medical Association, two doctors recommended by the S. C. Society of Clinical Pathologists, a technologist recommended by the S. C. Society of Medical Technologists, a technologist recommended by

LABORATORY LICENSURE IN S. C.

the S. C. Society of American Medical Technologists, and two hospital administrators recommended by the S. C. Hospital Association.

The South Carolina law exempts from licensure U. S. Government laboratories, research laboratories, law-enforcement laboratories, and laboratories operated by not more than two physicians exclusively for the diagnosis and treatment of their own patients. The law states that no laboratory shall be licensed unless it is directed by a qualified director who is either (a) a medical doctor licensed in South Carolina or (b) the holder of an earned doctoral degree with a chemical, physical, or biologic science as the major subject from an accredited institution who has had at least four years of experience in the medical laboratory specialty subsequent to graduation. Persons who directed a medical laboratory in South Carolina for one year prior to the effective date of the Act may continue to direct this laboratory.

Since the passage of the South Carolina laboratory licensure act, the staff of the Department of Health and Environmental Control and the Advisory Committee have been developing a set of regulations for implementation of the Act. We have faced the same problems which are yet not fully resolved on the national level — personnel qualifications in the small rural hospitals and in laboratories maintained by groups of physicians. Because of the possibility of delegation of Federal authority and responsibility along with supporting funds, an aim of the Department has been to achieve a set of regulations compatible with Federal standards without imposing unreasonable conditions on existing laboratory services. This effort has been made more difficult by Federal recognition of at least three sets of standards at the national level.

For the last several months, our efforts have been held in abeyance pending Congressional

decision on the bills before each chamber. The House bill had a favorable vote on September 20 (193 to 188) but it needed a $\frac{2}{3}$ majority for suspension of the rules. Efforts were made to bring it to a vote as late as three hours before Congress adjourned for the year on October 1 but they were defeated by parliamentary maneuvers. The supporters of the bill plan to revive it quickly and pass it early in the 95th Congress in 1977.

In the meantime, we plan to revise our draft of proposed regulations to try and bring them into agreement with the Federal regulations now being enforced by the Center for Disease Control and the Bureau of Health Insurance and to bring them with the assistance of the Laboratory Licensure Advisory Committee to the Board of Health and Environmental Control for adoption. We believe that the organizations most concerned with laboratory licensure are represented on the Advisory Committee and we welcome their help in this difficult and prolonged task. □

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Presented to the Health Care Advisory Board of the Department of Health and Environmental Control on October 14, 1976 by Malcolm U. Dantzler, M.D., M.P.H., Deputy Commissioner for Medical Care and Health Regulations.

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Usage in Pregnancy: See "Contraindications."

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GLAUCOMA: A CAUSE OF NEEDLESS BLINDNESS*

JOHN G. BELLOWS, M.D., Ph.D.**

An estimated 8 million Americans suffer from glaucoma — the second leading cause of blindness today — and two to three million of them don't even know they have the disease. Glaucoma, in its most common form, usually exists without giving its victims any warning symptoms. Undetected, the disease causes irreversible optic nerve damage eventually leading to total blindness. The tragedy of glaucoma blindness is that it frequently can be averted by early detection and proper management. The eradication of blindness caused by glaucoma is the goal of a new organization of ophthalmologists prominent in glaucoma research. The INTERNATIONAL GLAUCOMA CONGRESS has been formed as a positive step toward reducing the incidence of glaucoma blindness by making the newest information on the diagnosis and treatment of glaucoma available to all physicians.

The importance of early diagnosis cannot be overemphasized. If glaucoma is detected early, damage to the optic nerve, and therefore to the patient's eyesight, will be minimal. Though vision already destroyed at the time of diagnosis can never be restored, appropriate treatment will prevent further damage in the vast majority of patients.

Chronic simple glaucoma — by far the most common form — may be present without the victim's being aware that he has the disease. In many instances the visual field may become gradually constricted, up to the point where the patient has only "tunnel vision." Eventually, total blindness will ensue. Only the rare acute form of glaucoma (angle-closure glaucoma) causes sudden visual impairment and severe pain. If the intraocular pressure is very high, and

immediate skilled medical help is not available, blindness may occur within 24 hours.

Ophthalmologists often see patients who state that they have been changing their glasses at regular intervals for a year or more, on the recommendation of a non-medical eye specialist, and yet their sight continues to diminish. When examined by an ophthalmologist, these patients often learn to their dismay that glaucoma has been causing their difficulties. Frequent changes in the glasses prescription have merely delayed detection of the high intraocular pressures that have been causing the diminishing vision. Such patients have needlessly lost part of their sight — a loss which can never be restored. The word "needlessly" is used advisedly, because if glaucoma is detected early and treated properly, blindness can be prevented.

The early detection of glaucoma requires painstaking and time-consuming tests. Skilled ophthalmologists performing perimetric tests may frequently find blind spots (scotomata) near the visual center. While these scotomata are characteristic of early glaucoma, their detection in the early stages of the disease is difficult and requires painstaking testing performed by a skilled ophthalmologist or well-trained assistant. Because elevated fluid pressure in the eye itself is the most obvious symptom of glaucoma, the first important diagnostic procedure is *tonometry* — measurement of the intraocular pressure using a simple, gauge-like device called a tonometer. Unfortunately, because intraocular pressure varies both diurnally and seasonally, one tonometric measurement is not reliable. For this reason, glaucoma-suspect patients should have repeated tonometric tests. Although there are exceptions, the highest pressures are usually recorded between 4 and 6 a.m., and lowest readings are obtained at noon. Readings are generally higher in the winter than in the summer.

In some instances, it is desirable to hospitalize the patient and measure the intraocular pressure

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GLAUCOMA

at hourly intervals over a 24-hour period. When these measurements are plotted, they form the so-called diurnal curve which indicates the time of day at which an individual's intraocular pressure peaks. It is during the peak periods that the eye sustains its major damage.

Another essential diagnostic procedure is *tonography* — a test that measures the facility of aqueous humor outflow. High intraocular pressures may be caused by blockages in the normal outflow channels. Invariably, these high pressures result in optic nerve damage. There are various explanations of the mechanism by which increased intraocular pressure causes damage to the optic nerve.

Visual Field tests reveal the loss of peripheral vision and whether the degree of constriction has increased. Careful perimetric studies should be performed by a qualified ophthalmologist or a very well-trained assistant and, to be meaningful, should be repeated at least every six months to determine whether the constriction is pro-

gressing or whether the glaucomatous process is under control.

Finally, the *optic disc ratio* should be measured during every office visit. Increases in the optic nerve disc ratios denote the occurrence of further optic nerve damage. Only in recent years have ophthalmologists become aware of the importance of recording the disc ratios frequently in order to follow the course of the disease. Asymmetry of disc ratios is a highly reliable sign of glaucoma.

Immediate and long-term control of mild forms of chronic simple glaucoma can usually be achieved merely with the proper miotic drops (intraocular pressure-reducing agents). If miotic therapy is insufficient, the addition of the systemic administration of an anhydrous carbonic inhibitor will frequently control the disease. As soon as the intraocular pressure is normalized, glaucoma damage stops. To recapitulate, early diagnosis and treatment are essential to the prevention of glaucoma blindness. □

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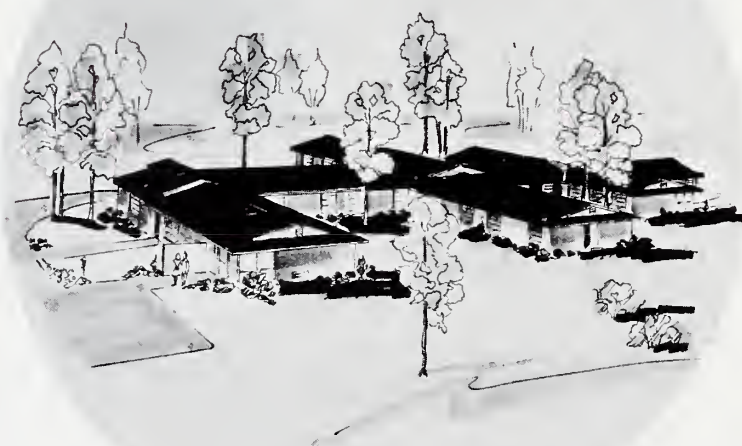
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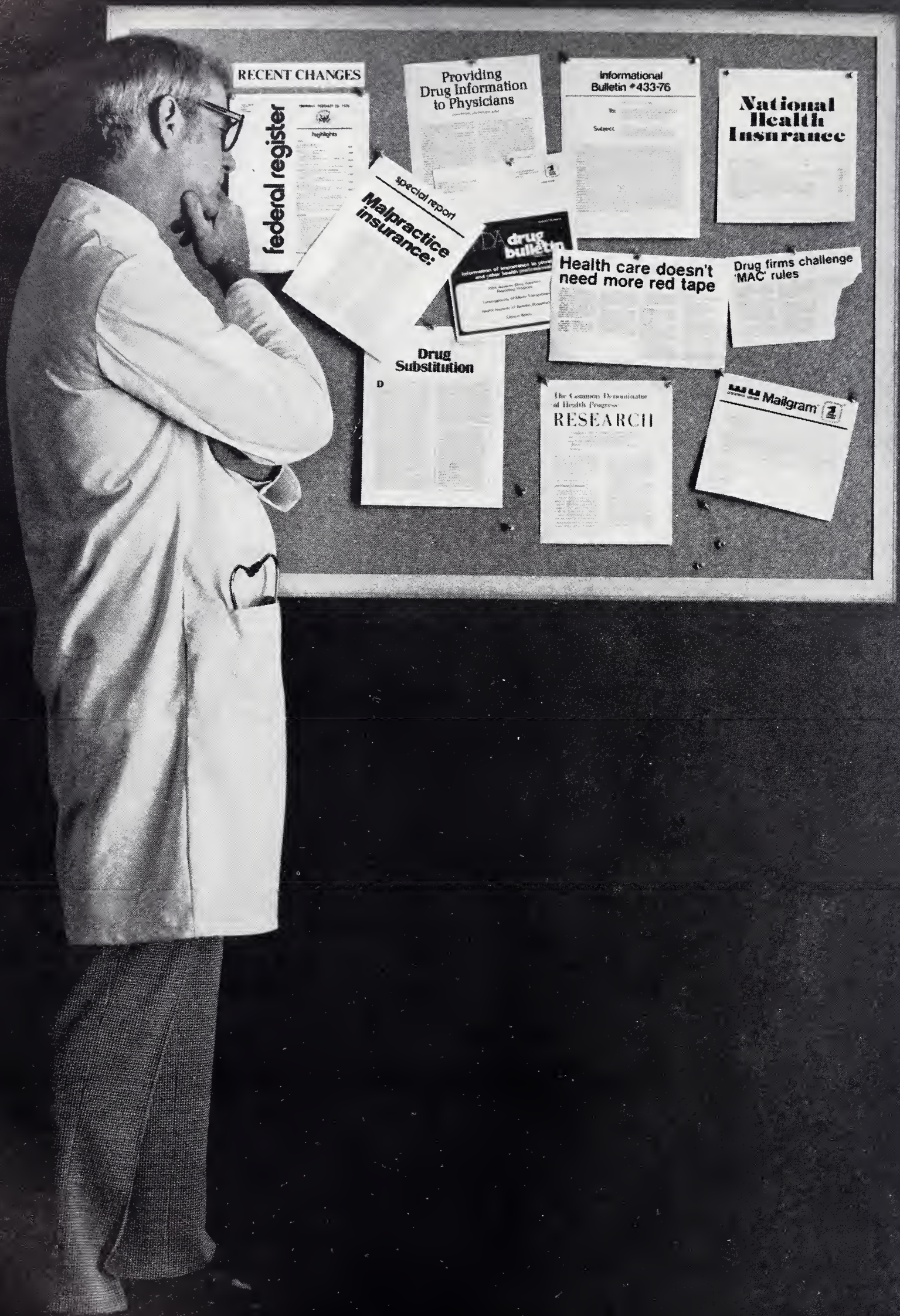
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RECENT CHANGES

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THERE ARE A LOT OF PEOPLE GETTING BETWEEN YOU AND YOUR PATIENT.

Medicine today is in the spotlight, subjected to all kinds of scrutiny. Your control over patient therapy is being monitored, judged and occasionally abrogated, sometimes by unknown third parties.

The worry is that in the wake of this focus, the relationship between you and your patient will be weakened, without offsetting benefits. Consider three examples:

Drug substitution In most states, pharmacy laws, regulations or professional custom stipulate that your non-generic prescriptions be filled with the precise products you prescribe. But in the last five years, a dozen or more State laws have been changed, permitting the pharmacist in most cases to select a product of the same generic drug to fill any prescription.

Ironically, this dilution of physician control has taken place against a background of growing evidence that purportedly equivalent drug products may be inequivalent, since neither present drug standards nor their enforcement are optimal. In fact, the FDA itself says it does not enforce the same standards for hundreds of "follow-on" products that it had applied to the original FDA approvals. Thus physician control over patient therapy is being eroded with a risk that patients may be exposed to drugs of uncertain quality.

The major advertised claim for substitution is reduced prescription prices for consumers. Yet no documentation of any significant savings has been produced.

MAC Maximum Allowable Cost, MAC for short, is Federal regulation designed to cut the Government's drug bill by setting price ceilings for drugs dispensed to Medicare and Medicaid patients. Unless the prescriber certifies on the prescription that a particular product is medically necessary, the Government intends to pay only the cost of the lowest-priced, purportedly-equivalent,

generally-available product. The effect of the program may be that elderly and indigent patients will be restricted to products which someone in Washington believes are priced right. Practicing doctors will have little to say about administration of the program, since Government will have absolute authority to make its choices stick.

The drug lag The future of drug and device research depends upon a scientific and regulatory environment that encourages therapeutic innovations. The American pharmaceutical industry annually is spending more than \$1 billion of its own funds and evaluating more than 1,200 investigational compounds in clinical research. Disease targets include cancer, atherosclerosis, viruses and central nervous system disorders, among others. But there is a major barrier to the flow of new drugs to your patients: The cost of the research is more than ten times what it was, per product, in 1962; and whereas governmental clearance of new drug applications took six months then, it commonly consumes two years now.

The FDA needs adequate time, of course, to consider data. But it is equally clear that the present approval process contributes to needless delay of needed therapy. That's why the increased efficiency of the drug approval process is vital to all our futures.

If these issues concern you, we suggest that you make your voice heard—among your colleagues and your representatives in State legislatures and in Washington.

It could make a difference in your practice tomorrow.



Pharmaceutical Manufacturers Association
1155 Fifteenth Street, N.W., Washington, D.C. 20005

President's Page



TO MY FELLOW PHYSICIANS:

— Rx FOR TODAY'S ECONOMY —

Let's talk about something that, in the very near future, threatens to become a major hindrance to our efforts to care for our patients.

Hospital costs have run wild, like a runaway train, and we're going to have to get involved enough to help put on the brakes. If costs continue to rise at the present rate, hospital care will soon be priced out of the reach of most of our patients. Even patients who carry comprehensive health insurance are growing less and less able to pay their constantly rising premiums.

If hospital care prices itself out of the market, we'll *all* suffer.

And there's an ethical question involved, too. A trusting hospital patient virtually gives his doctor a blank check. Doesn't the doctor have the responsibility to see that the money is well and wisely spent?

Can we help hold down hospital costs for our patients? Yes. Here are several suggestions:

(1) Whenever feasible, see to it that any necessary tests or x-rays are performed on an outpatient basis before the patient is hospitalized.

(2) Make wise and selective use of hospital services after admission of the patient. Some purchased services are necessary for the patient's care — but some aren't necessary at all.

(3) Make sure the patient doesn't stay in the hospital a single day longer than necessary.

(4) Vigorously oppose any attempts by the hospital industry to enlarge their operations to an extent greater than the community actually needs.

The doctor, of course, must always be the final judge of what hospital services his patient needs. But there are many occasions when we can serve our patients by trimming "fat" from their bills.

In times past, there were doctors who said, "I'm not interested in the cost to the patient, just his treatment." This is a posture we can no longer adopt. It belongs to bygone days.

J. D. Gilland, M.D.
President

Editorials

THE MISSION OF A MEDICAL SCHOOL

Not long ago, the people of Richland and Lexington counties decided to build a zoo. They built one — an excellent zoo, in fact, where one can behold exotic animals and birds in imaginatively simulated natural environments. We commend it to all Association members on their visits to Columbia.

Not long after the zoo was built, however, it became obvious that its purpose was not the same to everybody. To the innovative zoo Director, it was much more than a place for citizens to watch animals on Sunday afternoons. It symbolized an ancient heritage of man-animal interactions; it served as a valuable repository for accumulated zoological knowledge; and — yes — it was a place to carry out research. All this costs money.

The Director was fired.

The story is told not to analyze the complex Riverbanks controversy, but rather to illustrate the potential for wide differences between the expectations of taxpayers for their institutions, and the expectations of the administrators chosen to run those institutions. Seeking excellence, the administrator envisions a purpose extending well beyond the palpable wants of the taxpayers. The reason may be valid, but is likely to be unpublicized and unappreciated. Costs rise, budgets tighten. Conflicts ensue.

The people of South Carolina have decided to build a second medical school. They want more doctors. To the administrators of a medical school, however, such an institution must be much more. It symbolizes an ancient heritage of man-disease interactions; it serves as a repository

of accumulated biomedical knowledge; and — certainly — it is a place to carry out research. All this costs money.

Dr. Roderick MacDonald, Dean of the new University of South Carolina School of Medicine, presented his priorities for the new school to the Columbia Medical Society on 13 September 1975. Foremost was the need for a *Mission and Goals Statement*, expressing the purpose of the school. Once formulated, this document would rise through proper channels to the university's Board of Trustees. After approval, it would stand as a clear statement of what the school is supposed to be.

The high priority which Dean MacDonald has given to the need for a Mission and Goals Statement should be welcome news to Association members. Such a statement may avert some conflicts, and mollify others. Its ultimate success, however, hinges upon public acquiescence.

How can the public measure the productivity of a medical school? Reflecting on the great rise in the Medical University of South Carolina's budget over the past decade, the *Charleston News and Courier* recently addressed this problem:

"Presumably, the money that is being spent at MUSC . . . can be statistically justified at some point. If such is not the case, taxpayers should proceed carefully . . . Looking to the future, we would say about spending at MUSC what we say about spending at any state institution. It pays from time to time to stop and take stock. Taxpayers who fail to demand accountings will soon find they are paying for services not rendered."¹

The newspaper, although an avid supporter of MUSC, noted that a ten-fold budget rise could hardly be equated with a ten-fold increase in the size of the graduating class. If the public wants a new school primarily to provide *more doctors*, the potential for conflict is obvious.

Teaching, research, service — these are the traditional activities of a medical school. Although the need for teaching justifies the new school's existence, service and research are necessary to the school's legitimacy. These activities, however, introduce funding sources other than the taxpayers. Proliferation of funding sources causes diffusion of loyalties. Of the existing traditional, Flexnerian medical schools with heavy emphasis on research, one often hears complaints that faculty commitments are unclear, that departments take on the attributes of independent feudal kingdoms, and that overall administration is nigh impossible. As two sociologists recently wrote:

"Medical teaching centers are generally among the oldest health care institutions and appear relatively stable. Yet . . . *problems in terms of consensus about purpose pervade them. Conflicts over research, teaching, and service often prove difficult to resolve.* For all practical purposes, many of these institutions represent at least three separate organizations occupying the same physical space and squabbling over common resources."² (italics mine)

Hopefully, the new school's mission statement will set forth, in terms of the health needs of South Carolinians, priorities among the activities of teaching, research, and service. Hopefully, it will indicate to South Carolinians the *kind* of medical school they are getting. Hopefully, it will emphasize the need for cooperation of departments within the school, and of the school with other components of the state's health care delivery system. And, hopefully, the mission statement will not be an inflexible document but will contain within it a mechanism for future amendment, if needed.

Dean MacDonald's task is a large one. He has made an earnest start, and we should all wish him well with it.

CHARLES S. BRYAN, M.D.

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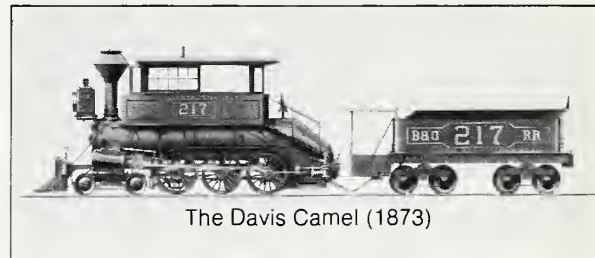
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AUXILIARY PRESIDENT'S PAGE



Mrs. Ronald Lanford, President of the Spartanburg Auxiliary, reports to us this month on the Walnut Grove Plantation.

Margaret Ellen Cline

WALNUT GROVE PLANTATION

The restoration of the office of Dr. Andrew Barry Moore at Walnut Grove Plantation began as a good idea for a community project, and became a reality and source of pride for the Spartanburg County Medical Society and Auxiliary. The office, built in 1765, is now a registered national historic landmark. The Spartanburg Auxiliary received recognition from the Southern Medical Association Auxiliary with an award in the "Research and Romance of Medicine" at the 1976 fall meeting of the SMAA.

The project started in 1974 with Doctor's Day Memorial gifts from the Spartanburg Medical Society and the Auxiliary. In the following years Auxiliary members worked closely with the Spartanburg County Historical Association in restoring the office to the essence of the early 1800's. Additional funds were raised through community service projects and annual rummage sales to purchase medical equipment and furniture authentic to the days in which Dr. Moore, the first physician in what is now Spartanburg County, practiced. The small one-story clapboard building's interior fireplace and furnishings are complemented with medical books, apothecary containers and herbs, a source of early medications, and medical instruments on display.

A most valuable research tool used by the Auxiliary were Dr. Moore's journals of his practice from 1800 to 1816. The journals list the patients' names, dates and nature of illness, treatment, and sometimes their occupation and status in the frontier community.

This year in observance of Doctor's Day, March 30th, forty Walnut trees will be planted at the site in memory of Spartanburg County physicians. At this time a bronze plaque engraved with the names of these physicians will be installed. Thus, the restoration will become a lasting tribute to Doctor Moore and to the long and distinguished history of the practice of medicine in upper South Carolina.

Visitors are welcome at Walnut Grove and may find it by following the markers from the intersection of I-26 and Hwy. #221 for about one mile. The plantation is on land granted by King George III to Charles Moore, the builder. Members of the Moore family still reside in the area. Items are still being received for the historic landmark. Anyone interested in making a donation may contact the Spartanburg Auxiliary.

Mrs. Ronald V. Lanford, President, Spartanburg Auxiliary

BOOK REVIEW

CONFEDERATE STATES MEDICAL AND SURGICAL JOURNAL. Published under the Auspices of the Library of the New York Academy of Medicine: The Scarecrow Press, Inc., Metuchen, N. J., 1976.

Over a hundred years ago, during the waning years of a bitter and fratricidal war, a unique medical journal was born that was destined for a short but interesting life. This journal, the *Confederate States Medical and Surgical Journal*, was ambitiously published in Richmond, Virginia, during the year 1864 and the first two months of 1865. It was owned and published by two gentlemen, Ayres and Wade, and although not representing the Confederate War Department or any other organization, it was probably influenced by the Surgeon General of the Confederate Army. The first issue carried the plans for the organization of the Association of Army and Navy Surgeons, and future issues carried news items relating to this association.

The journal carried original articles, generally very well written and of excellent literary quality, dealing primarily with the medical and surgical problems of the Civil War. Occasionally an article of more general interest, such as an original article on the microscopic anatomy and physiology of the human liver, would find itself in print. Each issue carried articles and abstracts of articles from the foreign press, especially French and British medical journals. In general, these articles from the foreign medical press dealt with progress in medicine of interest to the general practice of medicine and surgery, and, of themselves, constitute an interesting feature of the journal. The case reports in the journal were very well done and generally accompanied by confirmatory autopsy findings.

Medical journals, like medical and surgical supplies, were considered contraband of war by the Union forces and the precious foreign medical journals had to run the hazards of a Federal blockade.

When Richmond was burned, the existing issues of this journal were destroyed. The New York Academy of Medicine sought out the fourteen issues of this journal from several repositories and reproduced them by photocopy in such a manner as to preserve the original appearance of the type and format. Some of the pages are faded and hard to read but this minor annoyance is more than compensated by the feeling that you are reading the original journal in the time of its publication — that it is a true bit of history that you are reading.

One of the major concerns of the Confederate Army Surgeon was tetanus. The lead article in the first issue is the report of a case successfully treated with chloroform, laudanum, quinine and brandy. The quinine didn't seem to do much good and was discontinued, but the brandy, for very human reasons, seemed to have been needed even after the patient was well on the way to recovery. Of interest to me as a Urologist was the detailed chemical analysis of this man's urine; an analysis that would put the modern clinical laboratory under considerable difficulty. No microscopic analysis was done.

The scarcity of medical supplies in the later years of the war as a result of the successful Federal blockade caused the Southern physi-

BOOK REVIEW

cians, in and out of the Confederate Army, to use and to experiment with all available substitutes. One of the most interesting usages was the application of turpentine soaks about the chest of a malarial patient some thirty minutes before the expected chill. Some success was reported in thus aborting the chill. More than sixty plants indigenous to the south were identified and prepared in various ways for dispensing in the Confederate hospitals. Jamestown weed and hemlock for narcotic and anodyne effects, and a number of other less potent plants for a variety of uses. Watermelon was used as a diuretic. A prominent member of the American Medical Association, meeting in Chicago during the Civil War, condemned the Union forces for their harshness in declaring medical and surgical supplies as contraband of war. It was felt that captured, wounded Union soldiers would also suffer from lack of these supplies.

This volume might be considered a gold mine for traumatic and orthopedic surgeons who show an interest in the development of their specialty. Even as today, compound fractures of the upper femur and injury of the femoral artery were nightmares to the Confederate Army Surgeon. His ingenuity in the absence of X-ray and modern diagnostic methods, usually under field conditions and without the use of transfusions, was truly remarkable and deserving of a heart-felt accolade. One of his ingenious instruments was the Nelaton probe. This probe had a white porcelain bulb that was used to probe gunshot wounds. The lead of the bullet would scratch or mar the bulb and locate the bullet for removal with other probes and forceps. Gunshot wounds and compound fractures of the upper femur carried a very high mortality rate when treated conservatively or by amputation. Early amputation seemed to have a definite advantage over delayed amputation. Amputation of the thigh carried a mortality of about 38 percent.

There have never been accurate statistics as to the total number of casualties incurred during the course of the Civil War — on either side. The dead left on the battlefield cannot be counted in any hospital statistics and certainly serious chest and abdominal wounds were almost universally and immediately fatal. As in all wars, disease was the great killer. During the sixteen month period, October 1, 1862 to January 31, 1864, there were 2,513 cases of variola reported in the

hospitals in Virginia with 1,020 deaths, or 40.58 percent. In the Chimborazo Hospital for the period November 1, 1861 to November 1, 1863, there were 40,436 cases of illness not related to wounds. In this group, typhoid fever with a mortality rate of 20.39 was next; the death rate for all other diseases was a little over 3 percent. During the same period and in the same hospital, there were 6,740 cases of *Vulnus Scleropeticum* (wounds) with 377 deaths or a death rate of 5.74 percent. This I believe compares favorably with modern military statistics. In war, however, the ability to kill and maim has kept pace with the ability to medically care for the wounded.

This volume can be read as medical history, as a model for lucid medical reporting, for its nostalgia, as a Civil War buff, and as a kind of text or progress report in the evolution of military surgery.

The Library of the New York Academy of Medicine is to be complimented upon the preparation of this fine volume and with the preservation of this bit of medical history. □

Buford S. Chappell, M.D., Reviewer

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THERE ARE A LOT OF PEOPLE GETTING BETWEEN YOU AND YOUR PATIENT.

Medicine today is in the spotlight, subjected to all kinds of scrutiny. Your control over patient therapy is being monitored, judged and occasionally abrogated, sometimes by unknown third parties.

The worry is that in the wake of this focus, the relationship between you and your patient will be weakened, without offsetting benefits. Consider three examples:

Drug substitution In most states, pharmacy laws, regulations or professional custom stipulate that your non-generic prescriptions be filled with the precise products you prescribe. But in the last five years, a dozen or more State laws have been changed, permitting the pharmacist in most cases to select a product of the same generic drug to fill any prescription.

Ironically, this dilution of physician control has taken place against a background of growing evidence that purportedly equivalent drug products may be inequivalent, since neither present drug standards nor their enforcement are optimal. In fact, the FDA itself says it has not enforced the same standards for hundreds of "follow-on" products that it had applied to the original FDA approvals. Thus physician control over patient therapy is being eroded with a risk that patients may be exposed to drugs of uncertain quality.

The major advertised claim for substitution is reduced prescription prices for consumers. Yet no documentation of any significant savings has been produced.

MAC Maximum Allowable Cost, MAC for short, is Federal regulation designed to cut the Government's drug bill by setting price ceilings for drugs dispensed to Medicare and Medicaid patients. Unless the prescriber certifies on the prescription that a particular product is medically necessary, the Government intends to pay only for the cost of the lowest-priced, purportedly-equivalent,

generally-available product. The effect of the program may be that elderly and indigent patients will be restricted to products which someone in Washington believes are priced right. Practicing doctors will have little to say about administration of the program, since Government will have absolute authority to make its choices stick.

The drug lag The future of drug and device research depends upon a scientific and regulatory environment that encourages therapeutic innovations. The American pharmaceutical industry annually is spending more than \$1 billion of its own funds and evaluating more than 1,200 investigational compounds in clinical research. Disease targets include cancer, atherosclerosis, viruses and central nervous system disorders, among others. But there is a major barrier to the flow of new drugs to your patients: The cost of the research is more than ten times what it was, per product, in 1962; and whereas governmental clearance of new drug applications took six months then, it commonly consumes two years now.

The FDA needs adequate time, of course, to consider data. But it is equally clear that the present approval process contributes to needless delay of needed therapy. That's why the increased efficiency of the drug approval process is vital to all our futures.

If these issues concern you, we suggest that you make your voice heard—among your colleagues and your representatives in State legislatures and in Washington.

It could make a difference in your practice tomorrow.



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A SYSTEMATIC APPROACH TO SURGICAL TREATMENT OF ATHEROSCLEROTIC LESIONS OF THE CAROTID ARTERY

GILBERT B. BRADHAM, M.D.*

Cerebrovascular strokes are the third leading cause of death in the United States. Atherosclerotic lesions of the carotid arteries have been known to be associated with strokes for over one hundred years. "Cerebral intermittent claudication" has been described since 1914¹. Carotid endarterectomy has been performed since 1953².

This article seeks to glean from the medical literature and from our personal experience a set of directions which are explicit, which are easily remembered, and which delineate the appropriateness of surgical treatment of carotid artery stenosis.

The problem is one of actual or impending neurological impairment associated with atherosclerotic stenosis of the extracranial internal carotid artery.

The clinical diagnosis of the problem rests upon the evaluation of neurological deficits; the presence of carotid bruit; and the occurrence of retinal emboli.

There are three categories of neurological deficits, each a matter of degree. These categories are (1) cerebrovascular stroke, (2) transient ischemic attacks, and (3) chronic cerebral ischemia.

CEREBROVASCULAR STROKE

A cerebrovascular stroke is a condition of neurological deficit caused by focal cerebral is-

chemia or infarction. A stroke lasts more than twenty-four hours, may be permanent, and may be partially or totally reversible. The latter subcategory has been termed reversible ischemic neurological deficit (RIND). Cerebrovascular strokes may be caused by hemorrhage into the brain, or embolization or thrombosis of the cerebrovascular system. It has been the general experience of the vascular surgeon that progressive cerebrovascular strokes should not be treated by carotid endarterectomy due to an inordinate mortality and morbidity. It is a generally accepted axiom that the cerebrovascular stroke stabilize for six weeks prior to consideration of operative treatment.

Stroke is occasionally misdiagnosed as being caused by disease of the extracranial carotid artery system. The stroke may have been caused by hemorrhage or been associated with other events such as myocardial infarction. It has also been the experience of surgeons that the restoration of blood flow into a severely ischemic or recently injured portion of brain may further injure that portion. Stroke resulting from cerebral hemorrhage is often associated with hypertension and may be associated with rupture of a cerebral artery or rupture of a saccular aneurysm. When resulting from cerebral hemorrhage, the stroke is frequently sudden in onset and may be associated with severe headache, rigidity of the neck, vomiting, coma, or convulsions. Frequently the stroke is associated with other conditions bearing upon the vascular system. Specifically, these are hypertensive vascular disease,

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ATHEROSCLEROTIC LESIONS

diabetes mellitus, congestive heart failure, and cardiac arrhythmias.

Lumbar puncture may be indicated but should be performed with great caution because of the possibility of herniation of the temporal lobe (uncus) and subsequent brainstem compression. Cerebral arteriograms may be indicated immediately but generally are withheld for a period of time allowing observation of the progress of the stroke.

Management of the stroke patient essentially consists of good supportive care of the patient. There should be careful observation of blood pressure, respiration, thermal regulation, balance of fluids and nutrition, and care of all portions of the body which are dependent or which may be subject to undue pressure. Classical nursing procedures are essential during this period of observation and prevention. Vasodilators, anticoagulant therapy, and prophylactic antibiotics are judiciously considered depending on the clinical situation.

TRANSIENT ISCHEMIC ATTACK

A transient ischemic attack (TIA) may take numerous forms depending upon the site of the cerebrovascular system most affected. Generally the transient ischemic attack occurs suddenly and disappears entirely within a few minutes or several hours. In this manner, the transient ischemic attack may be viewed as comparable to the classical state of angina. It is considered that in some cases the attack is the result of vasospasm of the cerebral vessels and in other cases results from rapidly resolving small thrombi or emboli. Occasionally the transient ischemic attack is associated with myocardial infarction, cardiac arrhythmia, or fatigue. Frequently the symptoms of the transient ischemic attack are clinically so definite as to be isolated to one particular region of blood vessels. When there is major carotid artery involvement there frequently occurs speech impairment (dysarthria) or difficulty in arranging speech in a logical fashion (dysphasia). Sensory loss and motor weakness of the contralateral side of the body are often associated with disease of the origin of the internal carotid. If the vertebro-basilar system of blood vessels is involved, vertigo, ataxia and oculomotor manifestations are more apparent. Again articulation may be impaired. During these attacks the patient may injure himself by falling due to vertigo. If the anterior cerebral artery alone is involved

there may be mental confusion associated with incontinence and motor weakness primarily of the leg. If the middle cerebral artery is involved, dysphasia is a prominent symptom in dominant hemisphere ischemia and may be associated with hemianopsia and/or hemiparesis. When the posterior cerebral artery is involved, contralateral weakness, inability to read, aphasia, visual field deficits and ataxia may all be apparent.

The pathognomonic picture of the carotid artery TIA syndrome is a combination of amaurosis fugax homolateral to the stenotic or ulcerative lesion and contralateral paresis or sensory deficit. However, the extreme variability of the manifestations of the carotid artery TIA makes it impossible to formulate a description which is applicable to all cases. Even, rarely, the results of carotid artery disease may manifest as symptoms in the vertebral-basilar system because of pre-existing vascular lesions and/or pertinent collateral circulation. The definitive localization requires angiography.

Transient ischemic attacks may be due to emboli. In the past few years it has been more appreciated that visual manifestations are frequently associated with discernible retinal emboli. These emboli often times are easily identifiable as cholesterol particles or fibrin-platelet aggregates which are found in ulcerated plaques of the internal carotid artery. The presence of these types of emboli point strongly to internal carotid artery localization. Cerebral emboli may also arise from thrombi in the atria of the heart or mural thrombi of ventricular infarcts. In some cases the emboli may also initiate vasospasm.

If the transient ischemic attack is attended with serious concern, an appreciable number of strokes can be avoided. Goldner, Whisnant, and Taylor have reported that at least 33 percent of patients having transient ischemic attacks will develop an actual cerebrovascular stroke if observed for five years³. Thompson has reported that 60 percent of his patients with strokes gave a history of previous transient ischemic episodes⁴.

It is our view that the occurrence of a transient ischemic attack demands immediate, well-performed angiography and decisive judgment as to surgical treatment.

CHRONIC CEREBRAL ISCHEMIA

Chronic cerebral ischemia can be manifested by generalized, progressive mental deterioration. This condition is associated with progres-

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sive and diffuse cerebral atherosclerosis. When neurological deficits become rapidly apparent or when progression is noted, cerebral angiography is appropriate. However, it has been our experience that few such patients have progressive mental manifestations caused by carotid artery stenosis or benefit by carotid endarterectomy. Generally the condition of chronic cerebral ischemia is a manifestation of generalized atherosclerosis and is associated with risk factors such as hypertension, diabetes mellitus, angina, claudication, etc. It is important in such patients to obtain a detailed history and examination which usually reveals evidence of multiple neurological deficits. This clinical entity has been termed multi-ischemic dementia and is generally one of multiple and diffuse, usually small, cerebral infarctions. On view of cerebral angiograms it is often possible to identify a diffuse vascular disease process.

CAROTID BRUIT

A bruit heard over the carotid artery signifies turbulence of blood flow. Generally, this turbulence is caused by stenosis of the artery secondary to atheromatous plaques. Most often the stenosis is of the internal carotid artery. There are exceptions to the above statements. It is possible that the bruit is transmitted, as example, from the subclavian artery. In 10 percent of the cases, the bruit is due to stenosis of the external carotid artery⁵.

Thompson gives a differential diagnosis of cervical bruits to include physiologic murmurs, arterio-venous fistula, angiomatous malformation, intracranial neoplasm, Pagets disease of skull, fever, anemia, thyrotoxicosis and disease or malformation of all major arteries in or near the neck⁴.

Despite the possibility of other causes of cervical bruit, it remains that a bruit over the carotid bifurcation is indicative of internal carotid artery atherosclerotic stenotic disease in two-thirds to three-quarters of patients in whom it occurs⁵. In such patients, carotid arteriograms are appropriate.

When the arteriogram shows carotid artery stenosis of 50 percent or greater, or shows the presence of an ulcerated plaque, carotid endarterectomy is advised.

The question arises of a carotid bruit being found in an asymptomatic patient. Essentially 50 percent of such patients will either develop a

frank stroke or later become symptomatic and require endarterectomy⁴. *It has been our position to recommend arteriograms of all patients with carotid bruits.*

CAROTID ARTERIOGRAPHY

Extensive series of angiographic findings have been reported. Simmons⁶ has reported arteriography in 2,384 patients with a complication rate of only 0.5 percent.

At the Medical University Hospital, approximately 250 carotid or arch studies are performed each year for carotid disease alone. We have found that during the past ten years the radiological complication rate, like the surgical complication rate, appears more dependent on the technician than the technique. For this reason, we now depend solely on a highly trained vascular radiologist to perform all carotid or arch angiograms and do not any longer permit ourselves or our surgical residents to execute these critical tasks. The complication rate of our present vascular radiologist is approximately 0.1 percent⁷.



FIGURE 1

This angiogram shows an extremely severe stenosis of the internal carotid artery. This lesion was successfully resected.

At the Medical University Hospital the vascular radiologist consults with the vascular surgeon on each case. The type of radiological procedure is then determined by both dependent on clinical signs and symptoms and the general health and bearing of the individual patient. A direct puncture of the carotid artery or an arch angio-

ATHEROSCLEROTIC LESIONS

gram by catheter technique is performed depending on the clinical picture. The type of contrast media and its concentration is selected on the basis of the blood stream dilution expected and the resolution needed for the particular lesion expected. (Figure 1) A high concentration of contrast media is used by pressure injection in the arch and a low concentration is used in the cerebral system.

The surgeon and the radiologist always review the resulting radiograph together. A mutual decision is made of any requirement for further special radiological procedures.

CAROTID ARTERY ENDARTERECTOMY

The decision for carotid artery endarterectomy is made by the surgeon. We have been surprised at the rather large number of patients referred for evaluation who do not require surgical treatment. David and associates⁵ have shown that when angiograms were performed on 496 patients with TIA's, 36 percent showed normal arteries. More specifically, when the TIA is not accompanied by a bruit, 62 percent of the angiograms show normal arteries. If the TIA is associated with a bruit, only 13 percent of the angiograms show normal arteries. These data have several possible connotations. First, not all patients with TIA warrant carotid endarterectomy and other causes of the TIA need to be considered. Secondly, the combination of TIA and bruit denotes a higher probability of carotid stenosis. Third, it may be that these figures support the oft-considered prevalency of TIA causation by emboli rather than stenosis.

Our experience is similar to that of others. Approximately one-third of patients evaluated do not require operative treatment.

Carotid endarterectomy is designed for those patients who do require treatment to prevent stroke.

Carotid endarterectomy is done in the following manner. The patient is generally accorded the first position on the operative schedule. General anesthesia is given by a team of anesthesiologists and nurse anesthetists who are all experienced in working with high risk patients. Position of the patient on the operating table is carefully attended, care being taken that the final position is not an exaggerated one capable of kinking or producing undue pressure on the vertebral artery.

An incision is made anterior to the sternocleidomastoid muscle with the cutting cautery which is used intermittently throughout the procedure. Xylocaine (1 percent) is used to anesthetize the carotid body. Tapes are placed about the common, internal and external carotid arteries. Four thousand units of heparin are administered IV. An incision is made only through the wall of the artery onto the plaque. The plaque is dissected until a point where it is required to enter the lumen of the artery. At that point the tapes are tightened, the plaque is completely dissected away and the arteriotomy sutured. (Figure 2) The occlusion process seldom takes longer than five minutes. The wound is closed with absorbable (Dexon) sutures, the skin with absorbable subcuticular sutures. There is seldom more than twenty milliliters of blood lost and there are no skin sutures to be removed. The patient is able to have supper on the night of the operation, occasionally leaves the hospital on the next day, frequently the second post-operative day, and almost always is home by the third day.



FIGURE 2
Endarterectomy is begun prior to occlusion of the common, external and internal carotid arteries.

ATHEROSCLEROTIC LESIONS



FIGURE 3
The majority of the plaque is dissected prior to occlusion of the vessels.

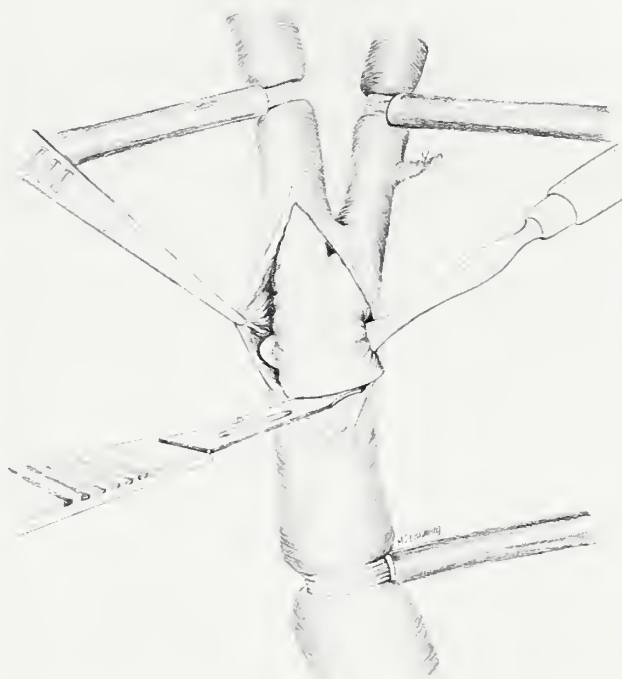


FIGURE 4
When the plaque is well dissected, the tapes are tightened, and the plaque is transected in the common carotid artery.



FIGURE 5
After transecting both the common and external branches of the plaque, it is dissected from the internal carotid artery.

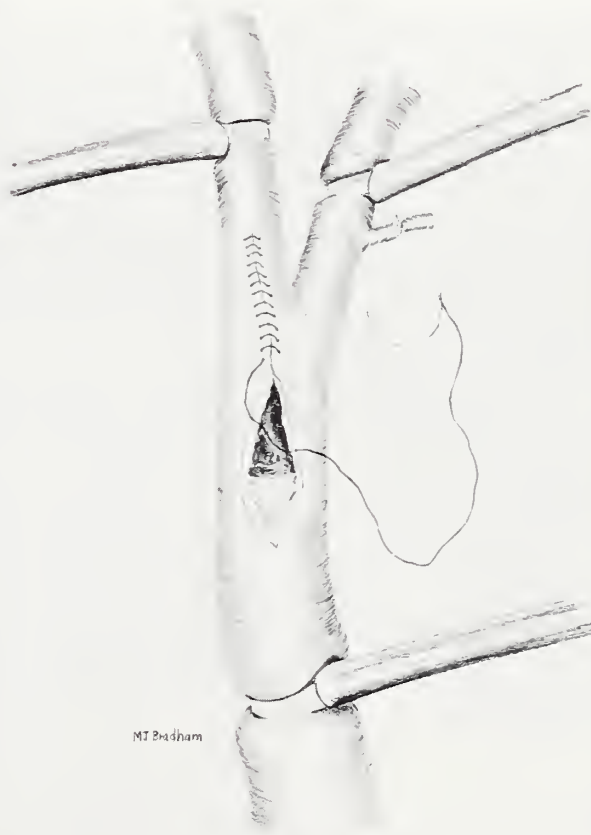


FIGURE 6
The endarterectomized segment of artery is carefully inspected, irrigated and closed with a monofilament suture.

RESULTS OF CAROTID ENDARTERECTOMY

Carotid endarterectomy is an operation designed to prevent stroke. Its major complication is the production of a stroke. For that reason it is regarded, as a recent surgical resident put it, a "tense operation."

Wylie and Ehrenfeld⁸, performed two very pertinent analyses. They showed in their early experience (1958-1966), when the operation was thought appropriate for the treatment of frank stroke, that post-operative stroke was present in 10.5 percent of their patients and that a mortality rate of 3.2 percent was encountered. During later years (1967-1969), when the treatment of frank stroke was minimized, and the operation was designed for the treatment of patients with TIA's, the post operative stroke incidence fell to 2.8 percent. Mortality became incidental (0.8 percent).

In 379 operations for transient ischemic attacks, Thompson's⁴ patients experienced permanent neurological deficits in only 2 percent of the cases. In contrast, in a group of patients having only asymptomatic bruits and not operated upon, 65 percent developed TIA's or frank strokes.

OUR EXPERIENCE

We have analyzed a series of 100 carotid endarterectomies, the majority of which were personal cases, and all of which were performed for TIA with and without bruits and visual manifestations. When these patients were operated upon by the technique outlined previously⁹ and in this presentation, there was only one post-operative stroke and no deaths.

Four instances of post-operative stroke during non-adherence to the technique outlined, performed by others, are not included. In fifteen similar instances, when the operation was performed for frank stroke, developing stroke, or unstable neurological deficit, there were four deaths, four improvements and seven instances of unchanged or aggravated neurological deficit without death.

SUMMARY

Cerebrovascular stroke is the third leading cause of death in the United States.

Cerebrovascular stroke may be preceded by TIA's, carotid bruits, and/or retinal arteriolar emboli.

The clinical characteristics of TIA's and strokes are presented.

The presence of TIA's, carotid bruits and retinal arteriolar emboli warrant thorough radiographic demonstration of the extracranial carotid arteries.

When atherosclerotic stenosis of the internal carotid artery or an ulcerated plaque is associated with transient ischemic attacks, carotid endarterectomy should be performed.

We do not advocate the carotid endarterectomy in patients who have unstable neurological deficit or acute stroke. □

ACKNOWLEDGMENT

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METOLAZONE THERAPY OF PATIENTS WITH MILD TO MODERATE HYPERTENSION

WILLIAM WARD, M.D.*

Effective antihypertensive therapy requires that the physician take into account the many factors that influence patient compliance.

Metolazone,** a newly introduced quinazolinone diuretic antihypertensive agent related to the thiazides, has been claimed to provide a degree of antihypertensive control with single daily doses that is at least equivalent to that observed with the thiazides.¹⁻⁵ It has also been suggested, on the basis of laboratory evidence, that metolazone may be somewhat better tolerated than the thiazides, with less tendency to cause potassium loss.⁶

We have been prescribing metolazone on a trial basis for more than a year. The present report reviews our experience.

PATIENTS AND METHODS

Twenty-four patients were judged to have received metolazone for a sufficient period to permit evaluation of their therapeutic response. The average duration of metolazone therapy was 3.9 months (range 1-13 months).

The 17 female and 7 male patients (Table 1) ranged in age from 36 to 84 years, with a mean of 60.2 years.

Twelve patients had been hypertensive for several years, during which time they had received various antihypertensive medications such as thiazide diuretics, chlorthalidone, methyldopa, and reserpine — singly and in combination. The other half of the patients were receiving metolazone as their first antihypertensive medication. Starting dosage schedules were 2.5 mg for 16 patients, 5 mg for 6 patients, and 10 mg for 2 patients.

The initial mean blood pressure of the group was 172/94 mmHg. Mean pressure was 175/93 mmHg for previously treated patients and 170/95 mmHg for newly diagnosed hypertensives.

RESULTS

The mean blood pressure of the 24 patients at the most recent observation available was 142/85 mmHg, representing a reduction of 30/9 mmHg, or -18/9%, from the mean pressure recorded before treatment with metolazone (Table 1). The 12 patients who had received no previous antihypertensive medication had a mean reduction of 36/8 mmHg (-21/8%), while the patients who had previously been treated showed a reduction of 25/10 mmHg (-14/10%). Thus the decline in systolic pressure was somewhat greater among the previously untreated patients, while diastolic pressure reductions were similar in both groups.

The diastolic pressure of two patients with initial values > 100 mmHg failed to respond during metolazone therapy, and a third patient had a marked increase in diastolic pressure.

Five patients reported possibly drug-related side effects, including dizziness, nausea, headache, and orthostatic reactions. Three of these experienced only transient and self-limiting reactions but two patients were removed from metolazone therapy because of adverse effects. One had reported a persistent dull headache while the other complained of nausea. Two other patients, who were found to have asymptomatic decreased potassium levels, were treated with potassium supplements.

During metolazone administration, the following dosage changes were made. Two patients who had originally received 2.5 mg per day were switched to 2.5 mg three times a week. Two patients who had originally received 5 mg were also switched to a regimen of three weekly doses. Three patients who began therapy with 2.5 mg per day were switched to 5 mg per day. One patient who began with 2.5 mg was removed from metolazone treatment when he was judged capable of sustaining normotensive pressure levels without medication.

Only three patients received concomitant antihypertensive medication, hydrochlorothiazide in one case and a combination of methyclothiazide 5 mg and deserpidine 0.5 mg in the other two cases.

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** Zaroxolyn, trademark of the Pennwalt Corporation, Pharmaceutical Division, Rochester, New York.

METOLAZONE THERAPY

COMMENT

Since metolazone had been reported to be effective in single daily doses and to be generally very well tolerated, we began to introduce it into our practice on a trial basis shortly after it became available.

This review of our experience confirmed the early clinical impression that metolazone provides effective control in the great majority of patients with essential hypertension, with less frequent side effects than we had been seeing with the short-acting thiazide diuretics such as hydrochlorothiazide.

SUMMARY

Twenty-four patients with mild or moderately severe essential hypertension received metolazone for an average of 3.9 months.

The mean blood pressure of all 24 patients decreased from 172/94 mmHg to 142/85 mmHg.

Only 3 patients failed to respond to

metolazone treatment and only 5 patients reported side effects. □

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Table 1. Patient Response to Metolazone Therapy

Patient number	Sex	Age (years)	Initial metolazone dose (mg)	Initial pressure (mmHg)	Final pressure (mmHg)	Duration (months)
PREVIOUSLY TREATED						
03	f	58	2.5	170/76	164/84	3
04	f	74	2.5	130/84	142/94	3
06	f	84	10.0	180/112	220/110	1
07	m	36	2.5	150/96	124/84	10
10	f	56	5.0	168/100	148/80	1
11	f	54	2.5	160/110	170/78	9
15	f	--	10.0	192/104	160/98	2
16	f	69	5.0	180/86	122/68	2
18	f	69	5.0	202/80	126/60	2
20	f	49	2.5	148/82	136/72	4
23	f	81	5.0	204/60	126/78	1
24	m	49	2.5	210/120	158/90	0.25
MEAN		61.7		175/93	150/83	
NO PREVIOUS TREATMENT						
01	f	57	2.5	172/96	126/88	5
02	f	74	5.0	180/92	150/80	7
05	m	72	2.5	164/84	122/94	2
08	f	91	2.5	200/90	160/88	13
09	f	57	2.5	152/84	112/58	6
12	f	45	5.0	180/110	132/90	6
13	m	47	2.5	172/102	158/104	1
14	f	54	2.5	174/98	132/84	1
17	f	57	2.5	166/102	168/128	3
19	m	42	2.5	148/94	116/80	4
21	m	57	2.5	160/76	110/70	3
22	m	53	2.5	166/110	118/84	5
MEAN		58.8		170/95	134/87	

PHYSICIAN'S ASSISTANTS IN SOUTH CAROLINA

KENNETH J. BUHMEYER, Ph.D.*

A progress report in this journal last year¹ outlined the origins, goals, and current status of the Medical University's MEDEX primary care physician extender program. Since then the program's educational objectives have expanded to include nine months of didactics, a clinical practicum, and a preceptorship experience. The name of the curriculum has been changed to Physician's Assistant Program to reflect these educational revisions. The program remains fully accredited by the Joint Council on Education of the American Medical Association and continues under the direction of the College of Allied Health Sciences and the Department of Family Practice. About forty of the program's graduates are fully certified by the South Carolina Board of Medical Examiners and are working in primary care practices throughout the state. The purpose of the present report is to outline some of the tasks done by physician assistants (P.A.).

METHODOLOGY

During preceptorship training students completed clinical algorithm checklists on patients seen with various acute medical problems.² These checklists were audited for errors in logic in collecting the data base, establishing plans, and initiating recommended protocols. A computer error audit was returned to each student and provided a mechanism to improve data collection and disposition performance within the defined limits of P.A. competencies.

RESULTS

Table 1 lists the fifteen clinical algorithms and the frequency in which they were used by the P.A. students. 11,784 patients were seen over a four year period of training approximately 105 students. Over one-half of the patients seen presented with an upper respiratory illness, laceration, or ear problem. Table 2 shows the patient triage according to algorithm logic. Problems often of a minor, nonserious nature could be handled primarily by a P.A. Only 28 percent and

25 percent of the upper respiratory illness and ear problems respectively were referred to the physician. On the other hand, those problems which are usually more serious were almost always referred to the physician; 99 percent of chest pains, 90 percent of nausea, vomiting, diarrhea, and 86 percent of the headaches. In all, 56 percent of the patients were referred to the physician for his examination.

Table 3 cites some of the common reasons P.A.'s were directed by the algorithm logic to refer the patient to the physician's attention. Generally, patients were referred to a physician for expertise when the problem proved to be life threatening or complicated enough to require a comprehensive pathologic analysis.

DISCUSSION

Technical skill performance and medical examination analysis of the University's P.A. students has recently been reported elsewhere.³ The results of these studies show that many routine technical skills previously done by physicians are being routinely done by P.A.'s. Furthermore, many initial evaluations and data bases are being done by a P.A. under physician supervision. This report demonstrates the feasibility of delegating some common problem assessments to P.A.'s under the direction of a conservative clinical algorithm system.

The key to a successful professional relationship between physician and assistant is mutual competency. The supervising physician must only delegate those tasks which he feels his assistant is competent to perform. The P.A. must learn protocols and meet the competency based objectives of university, national, and state certifying boards. □

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PHYSICIAN'S ASSISTANTS

TABLE 1

CLINICAL ALGORITHMS

RANK ORDER OF FREQUENCY OF CHECKLISTS USED

n = 11,784		
Rank	Problem	No. Used
1	Upper Respiratory Illness	3270
2	Laceration	1542
3	Ear	1041
4	Cough	778
5	Chest Pain	769
6	Headache	743
7	Nausea, Vomiting, Diarrhea	638
8	Fever	574
9	Shortness of Breath	563
10	Genitourinary/GYN	559
11	Urinary	352
12	Childhood NVD	333
13	Male Genitourinary	312
14	Back Pain	170
15	Bone and Joint	140

TABLE 1

n = 11,784

Algorithm	Total Patients	Referred to M.D.
Upper Respiratory Illness	3270	902 (28%)
Laceration	1542	812 (53%)
Ear	1041	265 (25%)
Cough	778	456 (59%)
Chest Pain	769	765 (99%)
Headache	743	640 (86%)
Nausea, Vomiting, Diarrhea	638	577 (90%)
Fever	574	436 (76%)
Shortness of Breath	563	464 (82%)
Genitourinary/GYN	559	376 (67%)
Urinary	352	257 (73%)
Childhood NVD	333	230 (69%)
Male Genitourinary	312	243 (78%)
Back Pain	170	140 (82%)
Bone and Joint	140	84 (60%)
		6,647 (56%)

TABLE 2

TABLE 3
CLINICAL ALGORITHMS

FREQUENT REASONS FOR REFERRAL TO M.D.

Algorithm	Percent referred	Reason
Chest Pain	99	Hx chronic disease, radiating pain to back, neck, or arm.
Nausea, Vomiting, Diarrhea	90	Symptoms >3 days, severe abdominal pain, diabetic, hypertensive.
Headache	86	Hx migraine or unilateral pain, Photophobia, stiff, painful neck.
Shortness of Breath	82	Chest pain, breathes better sitting up rather than lying down.
Back Pain	82	Associated with abdominal or thoracic cause, or with UTI.
Male Genitourinary	78	Difficulty voiding, but normal prostate exam, CVA tenderness.
Fever	76	Severe headache; nausea, vomiting, abdominal pain, abnormal chest.
Urinary	73	CVA tenderness
Childhood NVD	69	Temp. >104°F, dehydrated, inflamed throat, tender abdomen.
GU/GYN	67	Pain on lateral movement of cervix, CVA tenderness, Hx UTI.
Bone and Joint	60	Knee joint problem with no x-ray, any abnormal x-ray.
Cough	59	Increased sputum and color change from yellow to green, abnormal chest
Laceration	53	M.D. checks wound before treatment.
Upper Respiratory Illness	28	Abnormal chest exam, chest pain, temp >101°F, one swollen tonsil.
Ear	25	Mastoid tenderness, foreign body.

TABLE 3

PHYSICIAN'S ASSISTANTS: MEDICO-LEGAL PROBLEMS

LAWRENCE V. JOWERS, M.D., LL.B.*

The concept of a physician's assistant is based upon a premise that many functions of a physician do not require many years of preparation and expertise. The taking of vital signs, histories, treatment of minor burns or lacerations, monitoring of certain chronic illnesses, preventative medicine in pediatrics, and pre-employment physical evaluations might be cited as examples. If this be so, then one superficially but specifically trained to do such would free a physician so that his time could be spent in those activities that do require indepth training.

This concept of the physician's assistant is not new. The Russians, shortly after their revolution, utilized a physician substitute called the Feldsher,¹ and although his training was far below the accepted standards of physicians, he served the medical needs of people in sparsely populated areas. The Barefoot Physician in China is a wide-ranging, superficially trained paramedic who supplies more than merely first aid care. Our own armed services developed and trained corpsmen who in the absence of physicians diagnosed and treated not only injuries but illnesses as well.

Physicians, learned in theory and technique through years of medical school, have already yielded most laboratory work to technicians. Specially trained personnel manage coronary care units, renal dialysis units, and intensive care units. In these settings they monitor, diagnose and institute treatment for emergencies, thereby freeing a physician of the necessity of constant physical attendance in these geographic areas of hospitals.

My purpose is to call attention to the medico-legal and potential malpractice problems of the physician employer. The physician who utilizes an assistant is responsible for the performance of his assistant from the standpoints of both professional ethics and traditional tort law. As he, the physician, is both the employer and the advisor of his assistant, he must also be teacher and confidant; he must judge, praise, and chastise. Yet

the physician's primary responsibility and loyalty must ever be patient oriented, not employee. This is a big task.

It is upon these very basic fiduciary obligations, those to the patient on the one hand and the P.A. on the other, that civil liability can attach to the physician. Since the physician-P.A. relationship is statutory, criminal liability will evolve upon the breach of the regulations imposed. I will list and then discuss six of these theories.

1. *Aiding and abetting the unlawful practice of medicine*, or the unlawful use of assistants.
2. *Battery*, or misrepresentation in the failure to disclose.
3. *Negligence in the selection* of the assistant.
4. *Negligence in the supervision* of the assistant.
5. *Res Ipsa Loquitur*
6. *Respondeat Superior*, or the vicarious liability of the physician for the negligence of his assistant.

1. *Aiding and abetting the unlawful practice of medicine and/or the unlawful use of assistants.*

Until the advent of the physician's assistant as a non-physician health care *dispenser* permitted to engage in independent decision making, the utilization of office help or other personnel associated with the physician presented no problem. Nurses are licensed, have their own standards and their functions do not include independent diagnosis and treatment. Technicians, etc., are certified and function on specific orders of physicians. They offer diagnostic services but not therapeutic or vice versa, but never both on an independent basis.

It is illegal to practice medicine without a license. It also is established that a licensed physician guilty of aiding and abetting such or delegating one to do such unlicensed practice may have his license suspended or revoked as well as face criminal prosecution for the act. The definition of the practice of medicine is statutory, "entails any treating, operating on or prescribing for the ills of another as a business *or* the diagnosing, curing, relieving or attempting to do so of any human disease, ailment, defect, abnormality

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MEDICO-LEGAL PROBLEMS

or complaint, whether it be physical or mental, by attendance to or by advice, by prescribing or by using of or furnishing any drug, appliance, or by manipulation, adjustment or by any therapeutic agent."² This broad language precludes most activities of a physician's assistant in the absence of specific statutory permission or exception. Legislators of most states, recognizing this obstruction, have amended their medical practice acts to either permit or encourage the use of this new health practitioner within certain *specified* limits.

The South Carolina medical practice act was amended in February, 1975, to exempt from its restrictions certain specific functions of physician's assistants. The act also instructed the State Board of Medical Examiners to promulgate rules and regulations controlling such and to be the certifying board.³ A copy of the act and the rules appear later in this issue.

These regulations define the limitations of physicians' assistants. It specifies what will not be permitted and serves as statutory warning that anyone exceeding or permitting another to exceed these limitations is unlawful. These restrictions are in force and are controlling. They have yet to be successfully challenged before the higher state courts.

Therefore, in states such as South Carolina wherein there is statutory acknowledgement of the physician's assistant or in such states that have general delegations laws, it would *seem* that the physician utilizing such would be the least likely to incur civil or criminal liability for aiding and abetting the unlawful practice of medicine. Yet the wanton abuse or violations of these statutory restrictions have been the basis of at least three instances of revocation or modifications of physicians licenses since the enactment of the rules and regulations February 14, 1975, in South Carolina. In the other jurisdictions, however, where there are no statutory provisions, the danger does exist of the doctor employer being criminally liable *per se* in the use of such assistants and if indeed this conduct is held to be the crime of aiding and abetting the unlawful practice of medicine, he might not only endanger his license, his freedom, but as well find his or his physician's assistant's acts not covered by professional liability insurance. Civil liability for damages even in unauthorized assistants use, however, would be incurred only if the physician's negligence was indeed a proximate cause of the

patient's injury.

2. *Battery*, or misrepresentation in the failure to disclose.

Under the theory of informed consent, a physician may incur liability by failing to disclose the nature of his assistant. It is basic Anglo-Saxon Law that each man is considered to be master of his own body and he may, if he is of sound mind, expressly prohibit the performance of medical treatment⁴ and in the same vein each man must give his consent for the physician or assistant to touch or to "lay on a hand." If either the physician or assistant fails to inform the patient that the assistant is indeed *not* a physician, then the patient's consent to treatment by the P.A. is not informed, is not valid and would not bar an action for battery. The California Board of Medical Examiners has adopted a regulation which requires each assistant to wear a distinctive badge in order to avoid just this potential liability. The South Carolina Board requires the P.A. to identify himself as such. Incidentally, most of the states' statutes spell out that any representation by the physician or the physician's assistant that he, the P.A., *is a physician* or even the permitting or condoning of such misrepresentation *is* to be grounds for withdrawal of certification. If such misrepresentation is fostered, condoned or knowingly permitted by the physician, criminal charges of 'conspiracy to violate' could be made by the state. (At least one such case is in the courts now in South Carolina.)

3. *Negligence in the selection* of the assistant.

This is a danger in jurisdictions wherein there are no specific procedures for certifying assistants or in those where the permission to use assistants if granted in a broad general delegation statute. In these latter states, a physician would do well to document the training, experience, expertise and other qualifications of an assistant-to-be before he utilizes him. If challenged, an employing physician must show that his assistant was of such capabilities that another reasonable physician in his or a similar community would have indeed hired this same assistant or one with equal capabilities. Where a medical board has certified its approval that a certain person can serve as a physician's assistant, probably that certification would give the employing physician adequate protection with regards to this particular issue of negligence *if* the duties of the assistant were clearly within the scope and specified in the job description or employment contract.

MEDICO-LEGAL PROBLEMS

4. *Negligence in the supervision of the assistant.*

This is one of the most difficult areas. All statutes, even the broadest, require that assistants work under the supervision of a *specific licensed physician* who maintains authority for patient management. The basic premise of the concept of the physician's assistant is that he will be under the *control and supervision* of a physician. Some states limit the number of assistants one physician can have to assure this high level of supervision.

What constitutes acceptable supervision? Although some P.A.'s work in doctors' offices or clinics, others function in remote areas with only telephone contact with his physician. If these new laws are interpreted by the courts as requiring these assistants to have the physical, continuous, over-the-shoulder supervision the employing physician would do well to consider the statutory limitations as to whether such would permit increased productivity or extended health services. If indeed tort law imposes a personal obligation upon the physician for *every* harm that is incurred which could have been avoided by such a close *physical supervision*, the fear of charges of personal negligence and/ criminal charges would mitigate the widespread use of P.A.'s in the private sector. The clarification of these parameters of supervision must come from our courts and/or legislature, but until such is established the employer physician must consider these potential problems.

5. *Res Ipsa Loquitur*

This doctrine "the facts of the case speaks for itself" can be used in lieu of expert testimony by the courts to hold a physician liable for his own inferred negligence. It is not permitted in South Carolina. However, where permitted, the burden of proof would fall upon the physician to prove that his patient's injury did not occur through his negligence, nor did it occur because he used an assistant rather than another licensed physician. In South Carolina the courts require direct testimony by plaintiff experts as to the proximate cause of an injury.

6. *Respondeat Superior*, or the vicarious liability of the physician.

Under the statutes enacted thus far, every physician's assistant must work for a physician; he is paid by the physician, not the patient. In tort terminology, he is the physician's servant.

The physician has the *right of control* of his assistant. He *assigns* the duties, the parameters of his work, *determines* his responsibilities and is the one who had need of or sought the employee. The *right of control* exists and this defines this status as one of *master-servant*. The relationship would not be altered by the lack of exercise of this control. It is the right that is determinant. Therefore, such employer physician finds liability vicariously imposed for the negligent acts of the employee. That this is probably the way most courts will interpret the relationship is highlighted by the Colorado Statute which specifically indicates that legitimization of the physician's assistant should not serve to alter civil liability of physicians.⁵ The A.M.A. and the A.H.A. have gone on record that persons with qualifications of physician's assistants who are employed by hospitals are *not* to function in that role, i.e., of physician's assistants, since such persons as hospital employees would not only expose the hospital to the same type of master-servant liability as any other employee, but in the case of the P.A. the acts done could also be regarded as unlawful medical practice without a (specific) physician master to delegate, direct and supervise.⁶ This theory of liability will prevail unless the legislature provides otherwise such as defining the physician's assistant as an independent contractor or otherwise limiting the liability of an employing physician.

SUMMARY

The physician's assistant is functioning throughout the United States. He will continue to diagnose and treat various human ailments. By and far as he serves within his limitations, he may do good. However, because of the vagaries of both patients, physicians's assistants, and physicians, problems will arise; good treatment will fail, limitations will be breached, and errors will be committed. Therefore, this socio-medical solution to a national problem will become a medico-legal problem for a specific physician. □

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2. S. C. Code of Laws, Section 15-1355
3. S. C. Code of Laws, 1960, Section 56-1372
4. Natanson V. Kline, 186, Kan. 293-350, Pg. 2d @ 1104
5. Colo. Rev. Stat. Ann., Para. 91-10-4, Supp. 1969
6. JAHA, Vol. 45, June 1, 1971

STATE BOARD OF MEDICAL EXAMINERS OF SOUTH CAROLINA

RE: ASSISTANT TO A PHYSICIAN

Section 56-1355 of the 1962 Code of Laws of South Carolina, as amended, is further amended by adding at the end: (4) To apply to any act, task or function performed by an assistant to a physician certified by the Board of Medical Examiners, provided that (a) such assistant is approved and certified by the Board as one qualified by training or experience to function as an assistant to a specified physician or a physicians' group or professional association; and (b) such act, task or function is performed at the direction and under the supervision of such physician, or physicians' group or professional association, in accordance with rules and regulations promulgated by the board. Provided, however, that under no circumstances will these physicians' assistants nor optometrists' assistants be allowed to make a refraction for glasses or give a contact lens fitting.

RULES AND REGULATIONS FOR PHYSICIANS ASSISTANTS*

1. Definitions. (a) "Assistant" is herein defined as an auxiliary paramedical who performs such tasks as are approved by the Board in a dependent relationship with his/her supervising physician. (b) "Board" as used herein denotes the State Board of Medical Examiners of South Carolina. (c) "Supervising physician" is herein defined as that physician or surgeon, currently licensed to practice medicine in South Carolina, who makes application to the Board for approval of the use of an assistant and who upon approval of the applications assumes the responsibility of supervising all tasks performed by the assistant. (d) "Tasks" are herein defined as those specific work assign-

ments which are approved by the board on an individual basis after considering the type and length of training for each assistant; and which may be performed by the designated assistant without his/her being considered to be unlawfully practicing medicine.

2. An application for approval of an assistant must be made upon forms supplied by the Board and must be submitted by the supervising physician, with whom the assistant will work and who will assume responsibility for the assistant's performance. An application submitted to the Board must be complete in every detail before it will be approved, and must be accompanied by a non-refundable \$50.00 fee.

A supervising physician must clearly list in detail all tasks he requests the Board to approve for his assistant, both in his presence and when he is not actually physically present. All tasks listed must be typed and numbered in spaces provided on the application. Tasks approved by the Board for an assistant may be added, revised or deleted by the Board or the supervising physician each time an application is approved or re-approved. Supervising physicians may annually request additional tasks for which his assistant is qualified or request deletions of tasks that have not been performed satisfactorily.

3. To be approved by the Board to be an assistant an applicant must: (a) prove to the satisfaction of the Board that he/she is of good moral character and emotional stability; (b) give evidence of education, and experience acceptable to the Board. (c) have successfully completed an assistant's training program certified by the Board as of the time of completion by the prospective assistant. (d) successfully complete the qualifying examination given by the National Board of Medical Examiners or its equivalent, and successfully

* Adopted 8/13/74

* Revised 2/14/75

RULES AND REGULATIONS

complete an examination administered by the Board.

4. Upon final approval by the Board, an assistant will be issued a certificate. Temporary certificates may be issued for good cause shown. Assistants must re-register annually, on or before the first of January, and shall pay a \$15.00 re-registration fee.

5. An assistant must clearly identify himself as an assistant to a physician, so as to insure that he/she is not mistaken for a physician. It is mandatory that the assistant wear that identification badge approved by the Board at all times when the assistant is performing any task.

6. If for any reason an assistant to a physician discontinues working for the supervising physician who submitted the application under which the assistant is approved, such assistant and his supervising physician shall so inform the Board immediately in writing, stating the reasons. The approval of the assistant by this Board shall terminate until such time as a new application is submitted by the same or another supervising physician and is approved by the Board.

7. Assistants shall not: (a) examine any new patient not previously examined by the supervising physician or his/her referring physician; (b) diagnose diseases or ailments; (c) write prescriptions; (d) bill patients; (e) perform any task which has not been listed and approved on his/her application currently on file with the Board; (f) perform any task without the supervising physician being either physically present or immediately available to provide further guidance.

8. Approval of an assistant shall be denied, suspended or revoked, when the Board determines that said assistant: (a) has willingly allowed himself to be represented as a physician. (b) has had filed in his behalf with the Board any false, fraudulent or forged statement or document. (c)

has performed any work assignment constituting the practice of medicine which has not been approved by the Board. (d) is an habitual user of intoxicants or drugs to such an extent as to be unacceptable to the Board. (e) has been convicted in any court of a felony or any crime involving moral turpitude, alcohol and drugs. (f) has sustained any physical or mental disability which the Board considers may result in emotional instability. (g) is guilty of the performance of any dishonorable or unethical conduct that is likely to deceive or harm patients. (h) has violated or attempted to violate any rules or regulations of this Board.

9. The Board may conduct an investigation of any matter relating to assistants.

10. The Board may make unscheduled on site inspections of any office employing an assistant. As assistant, applying or approved, must be prepared to demonstrate upon request to a member of the Board or to other persons designated by the Board, his ability to perform those tasks assigned to him by his supervising physician.

11. The suspension or revocation of an assistant's authority to perform as such shall be done only for good cause shown, pursuant to a Rule to Show Cause, and upon not less than 20 days notice to the assistant accused. The decision shall be by majority vote of a quorum of the full Board and shall become effective upon delivery of a copy of such decision to the assistant involved. The assistant may appeal the decision to the circuit court within ten (10) days after receipt of the decision. No appeal shall act as a supersedeas of the Board's decision.

12. Rules and Regulations may be amended, revised or repealed by the Board, and instructions and applications will be revised periodically to include the current policies of the Board. □

SOUTH CAROLINA STATE HEALTH EXTENSION EXISTING FUNDING AND PROJECTS

HARDY WICKWAR*

The Table below was referred to in the February 1977 issue of the Journal of the South Carolina Medical Association, and is included here for additional information.

S. C. STATE HEALTH EXTENSION 1973/77						
(Projects and funding approved by State Board of Health November 18, 1975) (Projects marked with asterisks have also received federal grants-in-aid)						
Area and Locality	Funding \$	PURPOSE		District	SPONSOR	
		Facilities	Services		County Hospital	Municipality
<u>Appalachia</u>						
Pacolet (Spartanburg)	228,100	X				X
Iva, etc. (Anderson, etc.)	148,440		X			X
Blacksburg (Cherokee)	145,000	X				X
<u>3 Rivers</u>						
Upper Savannah	189,548		X		X	
Catawba	166,069		X	X (and)	(X)	
Midlands	234,310		X	X (and)	(X)	
<u>Pee Dee</u>						
Dist. Hlth. Srv. Bd.	563,606	X		X		
Waterlee	200,000	X		X		
Waccamaw	146,606	XX		XX		
<u>Palmetto Coast</u>						
Trident	340,973		X	X		
Lowcountry	139,876		X	X		
Colleton	13,600	X			X	
Calhoun	125,000		X	X		
Barnwell	36,600	X			X	
Bowman (Orangeburg)	150,000	X				X
Ridgeland (Jasper)	70,000	X				X
<u>TOTAL</u>						
17 Projects	2,897,728	10	7	9	3	5

* Consultant, Planning & Development, Richland Memorial Hospital, Columbia, S. C. 29203

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President's Page



TO MY FELLOW PHYSICIANS

SCMA ACCOMPLISHMENTS FOR PRACTICING PHYSICIANS

1. *JUA* — Currently, JUA rates in South Carolina are about third or fourth lowest in the nation. The JUA has guaranteed coverage to physicians and hospitals where other states have not been able to provide continuous coverage. Largely due to the efforts of the SCMA, the 71% rate increase requested in September by the JUA Board was denied by the Insurance Commission.
2. *DHEC Triplicate Prescription Proposal Cancelled* — In 1976, DHEC, through the issuance of Regulations, planned to require that physicians in South Carolina purchase triplicate prescription blanks for use in prescribing controlled substances. Through SCMA efforts, this proposal has been cancelled.
3. *DSS Printed Prescription Blanks* — Physicians recently received copies of printed prescription blanks from DSS to be used in writing prescriptions for Medicaid beneficiaries. Recently, you received my letter which pointed out that there are no legal or ethical regulations that doctors use the preprinted blanks.
4. *DSS Elective Surgery Regulations Cancelled* — In October, you were all notified that prior authorization from the County Welfare Department would be required before Medicaid recipients under the age of 21 could be admitted to the hospital for elective surgery. Through SCMA efforts, this regulation was cancelled and you were sent a joint letter from me and then Commissioner Ellis early in January announcing this cancellation.
5. *Blue Cross-Blue Shield Participating Physician Contract Rewritten* — Although many of you prefer not signing any type of participating contract with BC/BS, a large segment of the SCMA membership finds the participating contract useful. In their behalf, the SCMA was able to review the contract initially proposed by Blue Shield. Large sections of it were rewritten to make it more useful to those physicians who prefer to sign it.
6. *Blue Shield Acceptance of Assignments from Non-Participating Physicians* — Three years ago, through SCMA efforts, Blue Shield adopted the procedure of allowing non-participating physicians to be paid on an assignment basis along with participating physicians. This was achieved by the SCMA leadership and allows the non-participating physician to be paid directly by Blue Shield without signing a participating contract.
7. *Blue Cross-Blue Shield Semi-Annual Update of M. D. Profiles* — In the past, Blue Shield has reviewed the individual physician profiles which are used to determine physician reimbursement on an annual basis. As a result of SCMA's discussion, they have recently begun reviewing these profiles semiannually, thereby bringing the physicians' reimbursement in line with the physicians' actual charges on a more frequent basis.
8. *Blue Cross-Blue Shield Peer Review Committee* — Through an agreement with Blue Shield, a committee of practicing physicians has final authority on claims referred to the committee by Blue Cross-Blue Shield. The committee also has authority to make recommendations to Blue Shield on such matters as policy benefits and payment guidelines.
9. *Drug Substitution Legislation* — For the past two years, legislation has been introduced which would allow the pharmacist to substitute a generic or less expensive drug for the drug prescribed by the attending physician. SCMA has successfully opposed this and continues to oppose this.

We are proud of the above accomplishments which indicate the SCMA is working for you, members.

J. D. Gilland, M.D., President

Editorials

IMPRESSIONS OF COUNCIL

It has been said many times before but merits sayings again: *The Council works long and hard.*

Twenty members from every corner of the state attended this year's first meeting, held January 14 at the SCMA Headquarters Building. That this represented a 95 percent attendance went without comment — such is the established and accepted commitment of these physicians. It was evident, again and again, that the members had prepared for the meeting with the necessary homework. Despite such preparation, and despite the absence of long disputes, the meeting filled a ten-hour work day with but a short break for lunch. The session was leavened graciously by the hospitality of the immediate Past President on the prior evening and of the Columbia Medical Society after adjournment.

The meeting began with a guest presentation by Dr. Rolf P. Lynton, Dean of the College of Public Health of the University of South Carolina. Dr. Lynton expressed a desire for SCMA input into how public health and preventive medicine programs might assist the practicing physician. He underscored the need for definitions. *What is public health? What is preventive medicine?* Dr. Lynton indicated that his departments are scheduling "think sessions" to ponder these questions. He invited SCMA participation.

The basis for Dr. Harrison Peeples' keen attentiveness to Dr. Lynton's remarks soon became evident. Dr. Peeples, it turned out, has been grappling with these very problems of definition for years. Preliminary definitions have been formulated by the SCMA Committee on Relations with the Department of Health and Environmental Control. Dr. Peeples offered to share these with the guest. A specific quandary concerns the boundary at which public health care ends and private health care begins.

From this discussion, I believe that any ob-

server would have come away with the conclusion that there is an earnest and ongoing dialogue between the SCMA and the state and academic institutions. The need for improved provision of ambulatory care services, and the need to define more clearly the risk factors to the common chronic diseases, were specifically mentioned.

Next on the agenda was the President's report by Dr. J. D. Gilland. This seemed, in essence, a travelogue (minus the scenic photographs) of an incredible variety of meetings which he had attended as our representative in the ten weeks since the previous council meeting. I counted sixteen of them. Only once did Dr. Gilland falter: "I had to leave that meeting in the middle of it . . . to attend another meeting." Someone mercifully asked Dr. Gilland if he found time nowadays to attend to his practice.

Nine sub-committees then gave their reports. Each offered at least several items for discussion. A partial list of the 33 items on the published agenda (other items were introduced at "the last minute") included:

- *legislation to require continuing medical education as a license requirement
- *definition of terms applying to registered nurses and practical nurses
- *a proposal for financing medical clinics through farmers home administration and small business associations
- *public education regarding professional liability problems
- *recommendations regarding proposed Blue Cross/Blue Shield increases.

There were many more, and I suggest that the list of agenda items might be studied profitably by those who wonder *how* the SCMA serves them.

It merits saying again: *the council works long and hard.*

CSB

PHYSICIAN'S ASSISTANTS

A telephone shatters the night stillness. Silence follows. A voice then strides forth: "Give him 40 milligrams of Lasix right away, and I'll be over."

What thought processes underlie this confident imperative?

At one extreme is the accomplished research scientist. The pathophysiology of heart failure provides his daily fare, garnished by perusal last night of the latest treatise on sodium metabolism. He knows the patient, and as he sheds his pajamas and buttons his shirt he estimates what the right atrial filling pressure will be when he gets there.

At the average, there is the concerned and capable clinician. Understanding of basic principles, seasoned by experience, and practical in his decisions, he judges the data base to indicate clearly a volume overload on the left ventricle. He knows the patient well, in fact the patient is his friend, and he can't wait to get there in order to be of some help to him.

At the lowest extreme, sadly, there is the individual for whom the order, "give him 40 milligrams of Lasix," has no foundation. There is no scientific rationale. He may have little knowledge of the drug, and less knowledge of the patient. However confident the ring of his voice, it is that of the charlatan. The clinical problem may be volume depletion rather than excess, but he reaches for the loop diuretic just as his ancestor reached for the lancet. And, worse, he may not care much about the patient's welfare.

That the mannerisms of a doctor are rather easily assumed explains in part the success of the occasional imposter, who successfully fools most of the people some of the time before his inevitable discovery. The fear is sometimes expressed that the trained physician's assistant might be tempted to assume such a role. Especially in rural areas, the people might demand such a role of him if, for instance, their only doctor were to cease his practice. Lacking a thorough grounding in basic sciences and unable to keep abreast of

developments, he would ultimately do more harm than good.

I believe this fear to be unreasonable.

There is increased interest by both government and by organizations such as the SCMA to assure adequate licensing and regulation of all persons in the health care delivery system. Further, the network of health care extension into rural areas (see data in this issue provided by Mr. Wickwar) will make it increasingly difficult for the potential imposter to "go it alone," unwatched.

We should look instead at other aspects of the physician's assistant concept, and we should encourage the growth of this concept within well-regulated bounds.

In this issue, Dr. Kenneth J. Buhmeyer comments on the current status of physician's assistants in South Carolina. His analysis of their use of algorithmic protocols is of interest. His concluding paragraph carries a message which should be read and remembered. Of further interest is the article by Dr. Lawrence Jowers on the medico-legal problems posed by the physician's assistant concept.

It has been shown that patients managed by *supervised* physician's assistants in a rural setting "fare about as well as those seen by a physician."¹ Such studies have, however, used physician's assistants who were fresh from the academic environment. Hopefully, there will be long-term evaluations. We should be sensitive to the problems of identity which these young people will experience:

"The self-image of the paramedical professionals themselves will be an important factor in determining the future of this field. On the whole, their acceptance of this new role has been good, but they are anxious about career mobility, limitations of responsibilities, exploitation by physicians, and achievement of a salary level commensurate with their productivity and responsibility."²

Physician's assistants need the approval not only of patients and physicians, but also of non-physician members of the health care team. Recent years have seen enormous subspecialization within the nursing profession. In South Carolina, for example, the new laws governing nursing define the scope of practice for *eleven* nurse categories. These will be summarized in a future issue of *The Journal*. Quantitatively, the problem of defining more clearly the role of nurse practitioners far exceeds the problem of defining the role of the physician's assistant. The new regulations, for instance, refer to the "extended role of the licensed practical nurse" and to the "expanded role of the registered nurse." The scope of practice of the new breeds of nurse

subspecialists is considerable, and it is not surprising that some nursing educators have opposed the physician's assistant concept.²

Such regulations are tedious, but necessary. We should give them our attention. And we should wish these young people well, while maintaining our concern to protect the public interest.

CSB

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2. Murray, R. H.: Acceptance of paramedical professionals. *Ann Intern Med* 77: 467-468, 1972.

STROKE AND HYPERTENSION IN SOUTH CAROLINA

Statistics suggest that South Carolinians are especially vulnerable to the ravages of stroke. The lead article in this issue, which summarizes surgical advances in the preventive therapy of stroke, should therefore be of great interest. Arch aortography has become a safer procedure, and the surgical approach to disease of the extracranial vessels may be gaining wider acceptance.

All physicians would agree, however, that the primary interest should be *medical* preventive therapy — recognition and treatment of risk factors to stroke long before arch aortography might become indicated. Of the recognized risk factors to stroke, hypertension is probably the most important. The problem of how to apply more widely and more effectively the existing technology for management of hypertension challenges all segments of our health care delivery system.

The article by Dr. Ward in this issue illustrates the enormous potential for practicing primary physicians to tabulate, systematically, their data. Management of hypertension can be satisfying not only upon reflection on one patient's office chart, but also upon reflection on data summarized from a *population* of patients. Such a population is readily available to all primary care

physicians. Tabulation of such data enables the physician to evaluate the effectiveness of his various regimens. The data are occasionally worth publishing, and indeed I note a study quite similar to Dr. Ward's in another state medical journal this year.¹

The apparent simplicity of anti-hypertensive therapy is deceptive. A recent editorial in *The Journal of the American Medical Association*² pointed out five common, egregious errors:

(1) Blood pressure measurements are often inaccurate. This measurement seems simple. However, like most scientific measurements, it is fraught with complexities. There may be considerable observer bias.

(2) Too few patients monitor their blood pressures at home. A sphygmomanometer is relatively inexpensive. We should encourage more patients to purchase and use this instrument. Office visits can be used, in part, to check the accuracy of the home measuring technique.

(3) We should understand more thoroughly the relative merits of the various drugs and drug regimens. This area is one of frequent change, and should be a major focus for continuing education.

(4) We should do more to clarify patients' thinking about hypertension. The "silent killer" is poorly understood by many of its victims. Like diabetes mellitus, successful management seems often to be a function of the extent to which the patient understands his illness.

(5) We should be more judicious about the use of the costly "complete hypertension work-up." The editorial² told us that "complicated and expensive examinations . . . should be left to specialists or researchers," and that "casual measurements of renin, angiotensin, aldosterone, or catecholamine levels may be misleading rather than helpful."

In summary, hypertension is an unusually important topic. It is well-suited to data tabulation, and perhaps to process audit.³ We should do better at its management; it is of interest that a recent study clearly showed that, even at a celebrated clinic, tutorial sessions for physicians could improve the outcome of therapy.⁴

MORE ON STAMPS AND PHILATELISTS

The present and previous editors have encouraged practicing physicians to submit more original articles, case reports, and letters-to-the-editor to *The Journal*.

It has occurred to us more than once that a major reluctance of the practicing physician to do so may be the fear that, numbed by years of prescriptions and progress notes, his grammar may have sadly deteriorated.

In an editorial in the January issue, the present editor stressed that in our reviewing process, the practicing physician would be likely to find sympathy. The basis for such sympathy can be found in the following comment on that editorial, sent in by a former professor:

"I was a little awe struck to reflect on the spectacle of stamps envying a philatelist (page 2, paragraph 3), but in a world in which so many traditional relationships are being reversed, I suppose this had to come sometime." No comment!

CSB

Dr. James L. Young of Greenville has agreed to edit a special symposium on hypertension for *The Journal* for an issue this Fall. I can hardly wait.

CSB

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KIMBROUGH NAMED EDITOR EMERITUS

Council of the South Carolina Medical Association, at its meeting on January 14, 1977, approved a recommendation that Edward E. Kimbrough, M.D., immediate Past Editor of the *Journal of the South Carolina Medical Association*, be designated as Editor Emeritus.

Dr. Kimbrough assumed the editorship of the *Journal* four years ago, and has devoted numerous hours of time and given generously of his talent as a writer and as an administrator, seeing the *Journal* through a period of more than usual financial difficulty and administrative change. His objective of making the *Journal* a forum for a lively exchange of ideas and a source of practical medical information that would be helpful to its readership was not fully realized, but the effort and the ideal are appreciated. He has indicated his willingness to do anything he can to help the SCMA, so he will not be entirely "on the shelf." Dr. Kimbrough was recently named President-Elect of the Columbia Medical Society.

Ave et vale.

AUXILIARY PRESIDENT'S PAGE

RESEARCH AND ROMANCE OF MEDICINE — an Auxiliary project formalized in 1939, by the Southern Medical Auxiliary, to stimulate interest in and recording of unacknowledged events and contributions to the field of Medicine by Southern physicians, their families, medical societies, auxiliaries, or hospitals.

THE DOCTOR AND THE RIVER*

From the high bank of the Broad River at Peak, the Doctors Pinner can see four counties, including Fairfield, across the water. The river is pretty much as it was back in 1917, when Dr. Carroll A. Pinner, Sr., set up high office in Peak. It was a barrier between his home and the third of his practice that lay on the other side. He never had to swim it, but on several occasions he was tempted to try even that.

"The Yankees burned the only bridge ever built here, back in '65," he reminisced, "and for decades walking the railroad trestle has been the most dependable means of crossing. I've been marooned for two hours on a water barrel platform at mid-stream, while an urgent maternity case marked time across the river and a waiting freight train occupied the track. I've narrowly missed a swim at other times, too, at night crossings when ice made the foot-plank a slippery affair, and the wind made a sail of my overcoat!"

For 33 years, Dr. Pinner fought disease and the river. In horse and buggy days, Fairfield folks sent a buggy to the opposite side and a man across the trestle to get him. In the early Twenties, he bought a model-T, then had to buy a second one to park across the Broad.

"Even then," he recalled, "the river remained a problem. The Fairfield bank for half a mile back lies below high water level, and in rainy seasons the river required as careful watching as my most unpredictable patient. When it started rising, I had to rush over and move the car."

There once was a ferryboat, but the Parr Shoals power plant upstream kept the water level fluctuating so much the boat was often left high and dry on the rocks. More than 50 workers at the plant parked their cars in Peak each day and foot it across the trestle. Train schedules across the river were known precisely by every man and child for miles around.

Dr. Carroll Pinner, Sr. went into semi-retirement in 1951 when his son, Dr. Carroll A. Pinner, Jr. and daughter-in-law, Dr. Harriett E. Pinner, joined him in his Peak practice. Dr. Pinner, Jr. drove a jeep across that same trestle to get to Fairfield County.

In years to follow, a nuclear plant was built on the banks of the Broad near Parr in Fairfield County, and the need for a bridge across the river continued to increase.

THE STATE, August 24, 1961 — "An almost forgotten highway link was restored Wednesday, with the official opening of a bridge across the Broad River between Peak and Parr. Prior to this, the shortest distance between the Newberry and Fairfield communities located on opposite banks of the river was either 40 miles by way of Strother's Bridge, or a dangerous crossing of the Trestle at Peak. By resolution of the South Carolina General Assembly and action of the State Highway Commission, the bridge was named for Dr. Pinner, who for almost half a century served families on both sides of the Broad River. Dr. Pinner's grandson unveiled a bronze marker on the Newberry end of the structure."

Dr. Pinner, Sr. lived to see the Broad River "licked" with the building of the bridge. He died in 1962. His son and his wife have continued the medical practice in Peak, and in 1975 were joined by their son, Dr. Carroll Pinner, III.

Mrs. Billie Brady — Greenville

*Portions of this article were taken from *The State* newspaper and the official South Carolina Highway Department publication.

REMEMBER — MARCH 30 IS DOCTOR'S DAY!!

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Please fill in the above form, and check the desired activities below. The entire PRE-REGISTRATION FORM, along with your CHECK (payable to SCMAA Convention Fund), MUST BE mailed prior to the APRIL 18, 1977, DEADLINE to: Mrs. E. Darrell Jervey, 1511 Parkins Mill Road, Greenville, S. C. 29607.

This is necessary to make YOUR CONVENTION a success. Thank you. Tickets will be held at the pre-registration desk during registration hours ONLY.

THURSDAY, APRIL 28, 1977

3:00- 5:00 P.M. Registration

FRIDAY, APRIL 29, 1977

8:30-11:30 A.M. Registration

() 8:30- 9:30 A.M. Complimentary Continental Breakfast

10:00 A.M. Executive Board Meeting

() 1:00 P.M. SOCPAC Luncheon with Husbands — Congressman Ken Holland, Speaker.
Remind your husband to secure these tickets through SCMA.

SATURDAY, APRIL 30, 1977

8:30- 9:30 A.M. Registration

() 8:30- 9:30 A.M. Complimentary Continental Breakfast

10:00 A.M. General Meeting, House of Delegates

() 1:00 P.M. Membership Luncheon, Guest Speaker — Mrs. Norman Gardner, President,
AMA Auxiliary. Honored Guests — Past Presidents of SCMA Auxiliary.
Price: \$7 per member (Exception — Past SCMA Presidents)

2:30 P.M. Post Convention Board Meeting

() 7:00 P.M. SCMA Reception and Banquet
Remind your husband to secure these tickets through SCMA.

THE AMA AND ITS CLINICAL CONVENTION*

HARRISON L. PEEPLES, M.D., DELEGATE

Philadelphia, the City of Brotherly Love, was the most appropriate place to hold the 1976 AMA Convention in spite of our concerns about "Legionnaire's Disease." Coming at the end of our Bicentennial celebration, we met in the city where in 1776 the Liberty Bell was rung on the first reading of our Declaration of Independence. It is here where the Liberty Bell is housed to remind us of the freedoms for which the patriots fought the Revolutionary War. The inscription around the crown of the bell casts its spell upon all who read it: "Proclaim Liberty throughout all the land, Unite all the inhabitants thereof."

The momentous decision establishing independence, national security, and the rule of law were all made in Philadelphia. It was here that the Declaration of Independence and the Federal Constitution were drafted, debated and signed. It was here in 1776 that the House of Delegates at its opening session and at auxiliary functions was reminded of the part played by physician patriots of that day and reminded that freedom and liberty must not be taken for granted. As Jefferson said, "Eternal vigilance is the price of liberty."

Physicians and their organizations can execute that eternal vigilance and with unity of purpose can preserve our liberty and bring to the American people quality medical care at an affordable cost without duress.

Attending this convention were Senior Delegate Dr. John Hawk and his wife, Nancy and daughters, Margaret and Penny; Alternate Delegate, Dr. Tucker Weston and his wife, Polly; and Alternate Delegate, Dr. Ray Gillespie; our Executive Director, Charles Johnson; my wife, Elizabeth and myself.

It is our custom to have daily meetings in the Senior Delegates' hotel quarters during each AMA Convention. These early morning meetings are designed so that the delegates, alternates, officers and staff of the South Carolina Medical Association may discuss matters to come before the House of Delegates. These meetings are open to all and we would like to extend an invitation to any AMA and SCMA member present at these meetings to meet with us. We suggest that you contact some of us at the headquarters hotel where the delegates will be registered.

Rather than try to catalog detailed activities of AMA as previously done, I would like to mention a few highlights of the Convention and do a little editorializing rather than straight reporting. I feel safe in doing this because a very complete report of the meeting was published in the December 13, 1976, issue of *American Medical News*, so actions taken then that I may neglect to report have already been published. In that issue of the *AMA News*, the very distin-

guished features of Dr. John Hawk graced its cover on pages one and eleven.

NATIONAL HEALTH INSURANCE

By a vote of 181 to 57, the House of Delegates voted to have reintroduced into the Congress the AMA's Bill "Comprehensive Health Care Insurance Act" (last year's HR 6222). This, by far, provoked the most "heat" and "light" of the meeting.

Supporting this bill were the officers, Board of Trustees, Chairman of Council on Medical Services and Chairman of Council on Legislation and the entire staff of AMA. Their position was basically this: at the Clinical meeting in 1968, the House adopted the principle of graduated income tax credits on insurance premiums and called for the AMA to draft and promote federal legislation to implement the principle. Following this the Health Insurance Assistance Act of 1970 was adopted. This was the first official recognition of the term "Medicredit" by the House of Delegates. Following this, NHI Bills supported by AMA were introduced in the 92nd, 93rd, and the 94th Congress. These bills were founded on policies established by the House of Delegates.

According to the Board of Trustees Report QQ, the basic AMA principle with regard to developing a comprehensive insurance plan has not been violated, and the basic principles are as follows: "For example — any national plan would build on existing private insurance and should not be operated as a government service; the plan should be financed by private payment for insurance coverage for those with ability to pay and from general tax funds for low income groups; the plan should utilize the pluralistic health care system; the benefits should be comprehensive, embracing both basic and catastrophic coverage; there should be minimum federal involvement; no payroll tax and no administration under social security (which are the elements of the National Health Service system); the program should include appropriate cost-sharings; federal commodities should provide assistance to those in need. HR-6222 clearly embodies the principles endorsed by this House."

The Council on Medical Legislation concludes that, "to take a position, in effect, of no position on National Health Insurance would be interpreted by most people as abdicating the past position of AMA in support of a popular national health insurance program. Similarly, a position of not supporting any bill for national health insurance would be undesirable as amounting to a decision not to participate in development of any national health insurance program which may receive consideration in the Congress."

The Council on Medical Service says that an AMA pullout would leave physicians "talking only to themselves."

* Philadelphia, Pennsylvania
December 5-8, 1976

In opposition to reintroducing the bill were the very dedicated one-third of the delegates. Many spoke eloquently at reference committee meetings and from the floor of the House. Our Dr. Hawk was captured on national television making his appeal and was pictured standing in line to speak to the House of Delegates in *AMA News*, December 13, 1976.

Dr. Michael Smith of Louisiana showed, on closed-circuit TV in the hotel rooms, repeated runs of a documentary done by him and his son on medical care in England. He led the kickoff opposition. Dr. Von Thron made a very emotional appeal and stated, "I know of no other national industry that has a Bill to nationalize itself except medicine."

A Louisiana delegate stated that recently the 55,000 circulation, "*The Surgical Team*," conducted a survey that indicated that 60 percent of the physicians responding (about 2,000) opposed AMA sponsoring a National Health Insurance, and 97 percent believed National Health Insurance would not improve the quality of medical services.

There were some who expressed the view that the provisions set forth in the Bill (HR 6222) did not follow the guidelines as established by AMA. They pointed out the apparent discrepancies:

Part A — Would make for compulsory, not voluntary, participation by every employer.

Part B — Would dictate the kind of insurance that would be available. The part paid by government would vary according to income tax liability and no less than 10 percent of premiums would be paid by government for everyone, including the wealthy. This would make everyone receive government benefits. Each then would be subject to federal regulations. As you know, it is the official policy of the federal government and approved by the U. S. Supreme Court in *AAPS vs Weinberger*, that anyone whose medical care is paid for in whole or in part by the federal funds has no constitutional right to choose his own doctor and no constitutional right to the care his physician judges is necessary.

Part C — Would eventually remove private health insurance because of the strict provisions of eligibility entailed therein.

Part D — Would establish a 15-member board to supervise, regulate and control providers, consumers and insurance carriers. The consensus seemed to be summed up by a Texas delegate who said, "Texas does not want National Health Insurance, but we do not think that the specter of NHI will be driven away by our vote."

It is evident that the majority (three to one) of the AMA House supported some form of National Health Insurance, but I cannot believe that is the true reflection of the desire of the House. Most, seemingly, feel that in the political climate of today, the AMA has done the best possible at this point in time. It is my belief that we will continue the "gradualism" course, giving an inch here and an inch there, and NHI will be enacted piecemeal. Probably the first to be enacted will be catastrophic insurance and this, as you know, is opposed by the AMA if it stands alone. The AMA feels that catastrophic insurance adopted alone would lend itself to the kind of manipulation that would easily change the character of the program from a limited federal involvement to minimum private involvement.

To my mind there are two things that would alter the present course toward National Health Insurance, and neither of them are within our means of control. National Health Insurance would be prevented if by some chance the government would abandon "gradualism" and adopt an "Instantism" course of such magnitude and such abrasiveness as to be totally unacceptable by the medical profession so as to unite all physicians into saying, "No, beyond this we will not go." The other is a depression or recession that would point

up the true cost of a nationwide scheme in such a manner that would show to the American public the prohibitive cost of some of the schemes proposed. Cost will be the inhibiting factor.

The debate will continue but whatever the outcome we physicians must not be divided by matters over which we do not have absolute control. We are a member of a service organization dedicated to service to mankind and we fight to maintain an atmosphere in which we can function. "A physician should not dispose of his services under terms or conditions which tend to interfere with or impair the free and complete exercise of his medical judgment and skills, or tend to cause a deterioration of the quality of medical care" — *AMA Principles of Medical Ethics*. Any intrusion into the practice of medicine which limits a physician's ability to deliver care should be fought with vigor.

PRIMARY CARE

After many years of debate, the House of Delegates adopted a formal definition of Primary Care Specialties. There was opposition to this definition and at stake in the controversy is the potential for federal funding of education programs in primary care fields through the new health manpower legislation and through other future possible programs. The resolution is as follows:

Resolved, That primary care is a type of medical care delivered by physicians which emphasizes first contact care and assumes ongoing responsibility for the patient in both health maintenance and therapy of illness; it is personal care involving a unique interaction and communication and includes the overall coordination of the care of the patient's health problems with the appropriate use of consultants and community resources; and be it further

Resolved, That the medical specialties of family practice, internal medicine, pediatrics and obstetrics-gynecology be recognized as major, although not the sole, components of the profession which, together with general practice, provide primary medical care to the American public; and be it further

Resolved, That such recognition be in no way interpreted in legislation or otherwise as precluding the patient from having free choice of his personal physician or his consulting physician and also direct access to the physician he has so chosen; and be it further

Resolved, That training in primary care continue to be encouraged in all residency programs, and particularly in those specialties designated as major providers of primary care.

You will notice that primary medical care is delivered by physicians and is not the same primary contact delivered by allied and para-medical personnel. It recognizes general practice and four specialty groups as the major, but not the sole providers. It supports the patient having free choice of physician and direct access to physicians of his choice.

DRUG PRESCRIBING

Two resolutions with regard to handling of drugs were adopted. One opposes distribution of prescription drug samples to practitioners not legally authorized by law to prescribe or administer the drug. The other resolution opposes changes in any state law and pharmacy regulations that prohibit unauthorized substitution of prescription drug products. Or substitution of generic for prescribed brand name drugs.

SECTION ON MEDICAL SCHOOLS APPROVED

After 20 years of debate, the House of Delegates approved a Section on Medical Schools that will have medical school

delegates seated in the House. It is felt that this is an important step to close the gap between practicing physicians and medical educators.

This new section is set up to include representation for faculty as well as Deans of medical schools. Each medical school will be able to appoint as many as five representatives to the section (as long as they are AMA members), whether administration or faculty members.

We would urge faculty members of both medical schools in South Carolina to become active and involved in the South Carolina Medical Association and the AMA.

AMA FINANCES

Two years ago at Portland, delegates were told that the AMA reserves were zero, and the organization was forced to borrow to meet day to day operational costs. Due were raised from \$130 to \$250.

Today AMA's equity has increased to \$18 million in 1976 and is expected to rise \$11.5 million in 1977. This equity will surpass the 60 percent of operating expenses as directed by the House of Delegates in 1975. This has been brought about by increased membership (around 150,000) and decreased expenditures.

These reserves are needed, according to the Board of Trustees, for contingency expenses and the association's potential tax liability under IRS's unrelated business tax levies.

There were reports given that urge direct AMA billing (South Carolina now permits this on a trial basis) and other reports place emphasis on unified membership in the federation. These are projected as means of obtaining greater membership in AMA. These will be discussed at the annual meeting in 1977.

AMA — A POSITIVE ORGANIZATION

The AMA is often accused of being negative, but it usually stands in opposition to programs that may prove to be detrimental to the patient and medical practice. Dr. Schenken of Nebraska, in discussing "negativism" said, "Being against worms is not being negative; it's being for apples."

The AMA is a positive organization. Let me abstract from the report "What the AMA Dues Dollar Does" for the benefit of SCMA members who are not AMA members.

I. Disseminating Scientific Information (38.2% of budget — \$16.4 million)

The AMA encourages and facilitates the exchange of information in the following manner: The Journal of AMA, Continuing Education, Library, Audio Visuals, and the Council on Scientific Affairs.

II. Representing the Profession (10% of budget, \$4.3 million)

One important function is to act as the advocate for physicians and the quality of care patients receive. To this end the AMA has supported:

- training more physicians and allied health personnel
- financial assistance to medical schools
- encouraging physicians to locate in underserved areas
- venereal disease research and treatment
- immunization, including A/New Jersey/76 flu
- improved emergency care for local communities
- maternal and child health, crippled children services
- alcoholism, drug abuse and mental health
- Medicaid fraud correction
- review of medical devices by the FDA
- lead-based paint poisoning
- family planning

- pay incentives for physicians in uniform
 - a bill to improve health care for the American Indian
- The AMA has challenged in the Courts:

(A) Utilization Review. This would have made review of Medicaid-Medicare admissions to a hospital mandatory within 24 hours. It would have permitted some decisions to be made by non-medical personnel. Suit was filed and the regulation was withdrawn.

(B) *Health Planning Legislation*. Public Law 93-641. This law is a sweeping one that gives the Secretary of H.E.W. power over nearly every aspect of health care — construction of facilities, purchase of equipment, methods of delivery.

The AMA, the state of North Carolina, the North Carolina Medical Society and the state of Nebraska have joined in a suit that focuses on the certificate-of-need provisions of the law and tests other aspects of its constitutionality.

Under M.A.C., a patient would receive the lowest priced generic drug unless his physician certifies in writing the medical necessity for a specific product. The AMA opposes the regulation because they assume therapeutic equivalence without clinical proof.

Legal briefs challenging the regulations are before a federal district court in Chicago.

(D) *Lobbying*. (2.3%, \$971,000.) This is a small amount, compared to other budgets of labor and industry, spent to influence the course of specific legislation, analysis of bills, preparing testimony, publishing *Legislative Roundup* and meetings of the Council on Legislation.

(E) The AMA is involved in professional liability efforts and hospital-physician relations.

III. Serving the Public

(8% of budget, \$3.4 million)

Services and programs that directly benefit the public's health have been an essential part of the AMA charter since the beginning. Long before it was a popular cause, for example, the AMA pioneered clear stream laws. The AMA gave strong impetus to efforts resulting in iodized salt and bread enriched by vitamins. Pure food and drug laws, public sanitation measures of many sorts and the exposure of pseudo-medicine in all forms are long standing AMA causes.

There is considerable AMA focus, now as always, on health education. In 1976 over 215 million copies of nearly 125 pamphlets developed by the AMA Department of Health Education were distributed.

Two current projects typify AMA efforts in the public interest. They are — TV Violence and the Jail Project.

IV. Assisting the Physician in his Practice (17.7% of budget, \$7.6 million)

The AMA assists physicians in many direct ways — aiding the young physician to set up practice; Peer Review; computer technology; physician data — socioeconomic research.

V. Upgrading Care Through Educational Standards (12.3% of budget, \$5.3 million)

The AMA is involved in the following: Medical School Accreditation, Graduate Medical Education, Allied Medical Education, Professional Standards of Responsibility.

VI. Strengthening Organized Medicine (13.8% of budget, \$5.9 million)

The AMA, through its democratic mechanism, provides a forum through which physicians can raise issues that concern them professionally and discuss various viewpoints before their colleagues, achieve consensus and then set policy to be carried out with the help of the AMA Staff.

The AMA is a positive force and for those of you who are not members, we invite your participation and membership. The AMA can't be all things for all people. Some decisions adopted as policy may not suit you or me, but they are representative of the majority. The AMA encourages your comments and participation in its discussions.

A CHALLENGE TO AMA AND THE MEDICAL PROFESSION

Dr. Stanley S. Peterson, retiring delegate from Missouri, published and delivered to the delegates his farewell comments. He stressed the importance of the AMA in directing the course of medicine and medical care in America and stressed the importance of the role we play in setting the stage for what is best for our patients: "I think at times we may listen to our enemies more than we do our friends and ourselves, and act injudiciously, but generally this is not true.

We are literally at war. On the medical front, we are winning nicely on disease and even on some extent in the field of neoplasm and related problems; but we are losing out to aging, and the area is being usurped by planners. In the war with providers, we are being outflanked on all sides by those of lesser ability being sold as answers to the delivery problem. Second-class care by second-class personnel must be resisted by all means. The best can be provided. On the economic front, even the present level of medical care is being eroded in the name of 'cost containment,' further setting the stage for second-class medicine. But worst of all, the decisions on what our patients need are being taken from us, their physicians, and given to people of little knowledge and no responsibility for patient care. This must not be tolerated!"

The AMA has done a great service for physicians and patients. The AMA has been in the forefront of continuing education, upgrading of medical care, and fostering communications with medical schools. We have been involved in hospital care, but this facet is deteriorating because we are allowing the care of our patients to be dictated under rules made by others than those of us who are entrusted with the lives of our patients.

"We must not accommodate. The very nature of medicine will not allow this. Examples of accommodation are available on all sides. Look at the railroads. Look at energy. Look at the other countries who have the mighty experiment called Democratic Socialism in action. All are in trouble. Great Britain, whose prime minister has recognized publicly that their 'system has come to the end of the line' and their only salvation lies in those ugly words, 'investment and productivity.' I could further add the country of Germany, whose Social Democrat party was given a bad scare, and Italy, a country which will no doubt go communist as a result of their Democratic Socialism. Why our representatives do not recognize this is incomprehensible to me.

"Medicine is always the area which can be taken over first and in the name of 'cost containment' provide services for which the government can take credit while reducing these services — and only those in the provision of services know what is happening to them.

"Physicians must no longer allow themselves the luxury of 'noninvolvement.' If we are to continue to provide the type of medical care to which all of are citizens can aspire, and if we are going to maintain the esteem with which we are held by our patients, then we must stand up and be counted as a solid group. About the only fault the House of Delegates has is that it has fallen into habits of compromise."

Alexis de Tocqueville says, "The will of man is not shattered — but softened, bent and guided. Subjection in minor affairs does not drive men to resistance, but it crosses them at every turn until they are led to surrender."

Is this to be our course? With your help and mine, I think not.

SOUTH CAROLINA MEDICAL ASSOCIATION ANNUAL MEETING REGISTRATION
April 28 - May 1, 1977 -- Myrtle Beach Hilton, Myrtle Beach, S. C.

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THERE ARE A LOT OF PEOPLE GETTING BETWEEN YOU AND YOUR PATIENT.

Medicine today is in the spotlight, subjected to all kinds of scrutiny. Your control over patient therapy is being monitored, judged and occasionally abrogated, sometimes by unknown third parties.

The worry is that in the wake of this focus, the relationship between you and your patient will be weakened, without offsetting benefits. Consider three examples:

Drug substitution In most states, pharmacy laws, regulations or professional custom stipulate that your non-generic prescriptions be filled with the precise product you prescribe. But in the last five years, a dozen or more State laws have been changed, permitting the pharmacist in most cases to select a product of the same generic drug to fill any prescription.

Ironically, this dilution of physician control has been placed against a background of growing evidence that purportedly equivalent drug products may be inequivalent, since neither present drug standards nor their enforcement are optimal. In fact, the FDA itself says it has not enforced the same standards for hundreds of "follow-on" products that it had applied to the original FDA approvals. Thus physician control over patient therapy is being eroded with a risk that patients may be exposed to drugs of uncertain quality.

The major advertised claim for substitution is reduced prescription prices for consumers. Yet no documentation of any significant savings has been produced.

MAC Maximum Allowable Cost, MAC for short, is a Federal regulation designed to cut the Government's drug bill by setting price ceilings for drugs dispensed to Medicare and Medicaid patients. Unless the prescriber certifies on the prescription that a particular product is medically necessary, the Government intends to pay only the cost of the lowest-priced, purportedly-equivalent,

generally-available product. The effect of the program may be that elderly and indigent patients will be restricted to products which someone in Washington believes are priced right. Practicing doctors will have little to say about administration of the program, since Government will have absolute authority to make its choices stick.

The drug lag The future of drug and device research depends upon a scientific and regulatory environment that encourages therapeutic innovations. The American pharmaceutical industry annually is spending more than \$1 billion of its own funds and evaluating more than 1,200 investigational compounds in clinical research. Disease targets include cancer, atherosclerosis, viruses and central nervous system disorders, among others. But there is a major barrier to the flow of new drugs to your patients: The cost of the research is more than ten times what it was, per product, in 1962; and whereas governmental clearance of new drug applications took six months then, it commonly consumes two years now.

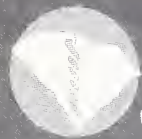
The FDA needs adequate time, of course, to consider data. But it is equally clear that the present approval process contributes to needless delay of needed therapy. That's why the increased efficiency of the drug approval process is vital to all our futures.

If these issues concern you, we suggest that you make your voice heard—among your colleagues and your representatives in State legislatures and in Washington.

It could make a difference in your practice tomorrow.



Pharmaceutical Manufacturers Association
1155 Fifteenth Street, N.W., Washington, D.C. 20005



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Contributions of Original Articles

Length — Short articles of about 2,500 words (about 8 typewritten pages, double spaced) are preferred. Longer articles will defer to the shorter ones in schedule of publication.

Manuscripts should be typewritten, double spaced, and the original and a copy submitted.

Illustrations — Ordinary publication of 4 small illustrations or the equivalent accompanying an article be paid for by The Journal. Any number beyond this must be paid for by the author except under unusual conditions. Illustrations should be sent as glossy prints or graphs in black ink with lettering large enough to show after reduction.

References — Should conform to the following order: surname and initials of author, title of article in full, name of periodical, with volume, page, month, day of month, if weekly, and year — e.g.: Lee, G. S. Heart rhythm following therapy with digitalis. Arch Int Med 44:554, Dec. 1942. They should be listed numerically in order of appearance in the text. Standard abbreviation for journals should be used. Note that periods are used with these abbreviations as indicated by the Index Medicus. Other abbreviations should be standard — e.g., mg, ml, Gm.

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MODIFIED SIMPLE TECHNIQUE FOR LIVER RESECTION

JOSEPH HODGE, M.D.*

SUMMARY

A modified simple technique for liver resection with the use of hepatic occlusive and hepatic atraumatic resection clamps can be performed without hilar dissection, caval tapes, afferent occlusion or hypothermia. The jaws of the occlusive clamp contain vertical spikes and horizontal serrations. When closed, these compress the liver lobules and occlude biliary ducts and hepatic vessels. The hepatic resection instrument consists of atraumatic serrations that do not crush liver substance. These instruments facilitate liver resection and reduce operative time and blood loss.

Indications for liver resection have been established^{4, 7, 9, 10} and various procedures described.^{1, 2, 3, 6, 8, 10} The principal techniques that have been previously reported consist of the conventional anatomical isolation, ligation and division of structures of the hepatic triad at the porta hepatis and the hepatic veins draining to the inferior vena cava.

In addition to hilar ligation, liver resection has been performed with the use of suture ligatures,³ cautery, temporary afferent occlusion and hypothermia³ the finger fracture and crushing clamp techniques.^{6, 7, 8} The purpose of this paper is to describe a modified simple technique for liver resection with the use of hepatic occlusive and non-traumatic hepatic resection clamps.

DESCRIPTION OF THE INSTRUMENTS

(Fig. 1 - a, b, c, d)

- a) The hepatic occlusion clamp
- b) The hepatic resection clamp

The hepatic occlusion clamp is 38 cm long. The blades are 2 cm in length of which the jaws of each blade measure 6 mm wide and contain interdigitating vertical spikes 4 mm in depth. Along the individual blades are horizontal serrations that are 2 mm wide.

The hepatic resection clamp is 38 cm long consisting of slightly curved blades measuring 22 cm in length and 6 mm in width. The blades consist of 1 x 2 rows of nontraumatic serrations which are atraumatic and do not crush.

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LIVER RESECTION

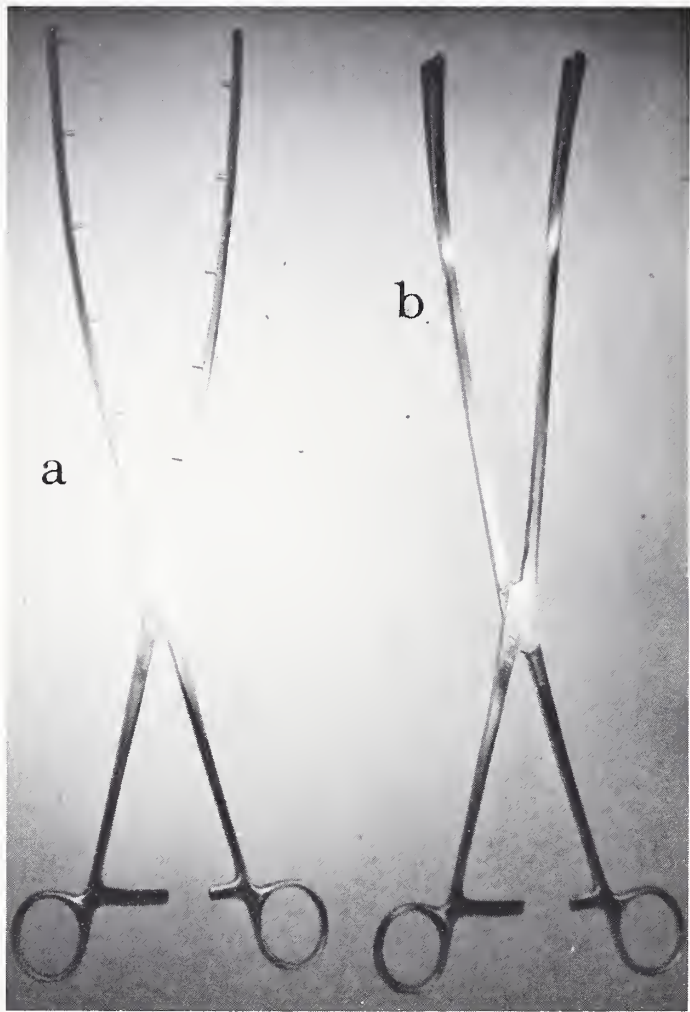


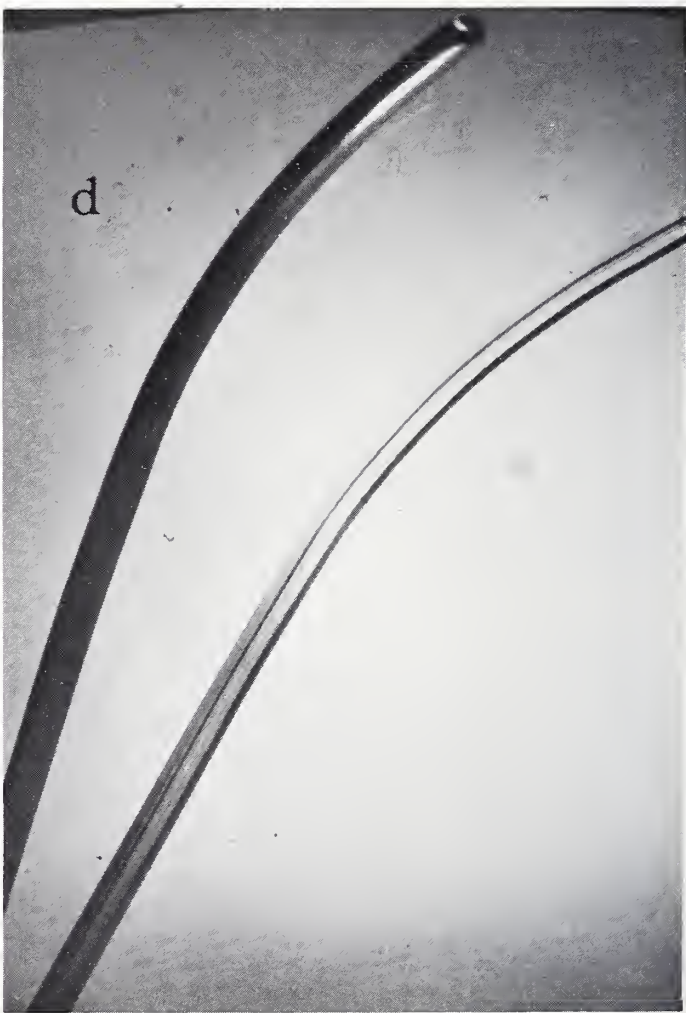
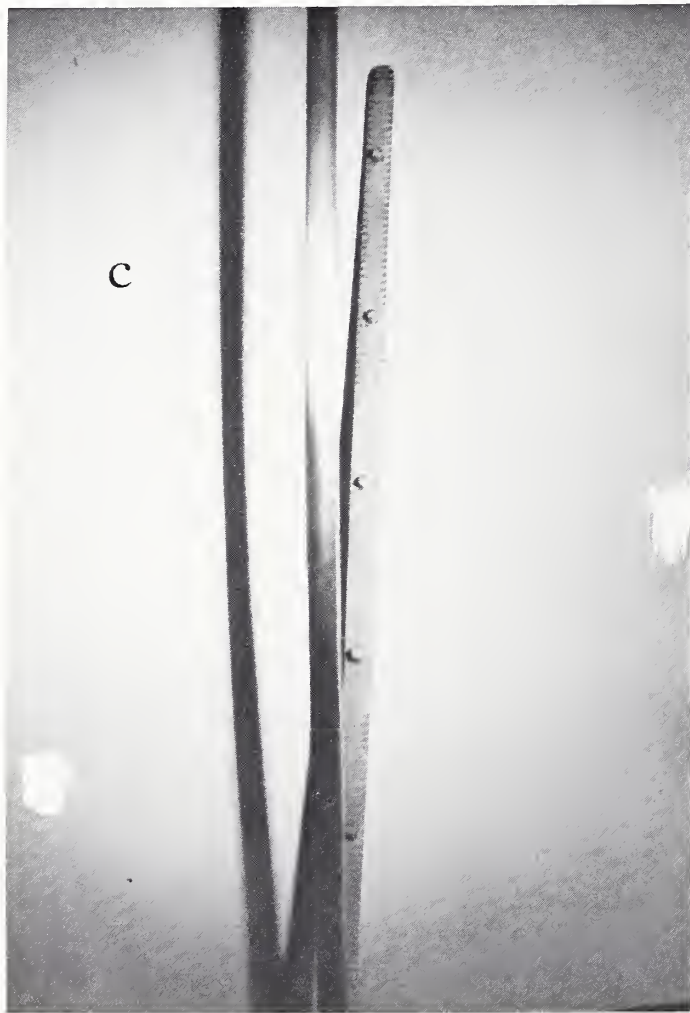
FIGURE 1.

LEFT (a and b): Occlusive instrument* (left) and atraumatic resection instrument (right)

BOTTOM LEFT (c): Close-up of occlusive instrument

BOTTOM RIGHT (d): Close-up of atraumatic resection instrument

*Upon closing the blades of the occlusive clamp, the vertical spikes compress the liver lobules thus occluding the biliary ducts and hepatic vessels. The horizontal serrations between the spikes add traction thus preventing the clamp from slipping and exert an additional force insuring occlusion of the hepatic lobule and its structures.



LIVER RESECTION

OPERATIVE TECHNIQUE

Healey,⁵ through his significant contributions relating to the surgical anatomy of the liver, has made radical resection possible.

The hepatic occlusive and non-traumatic hepatic resection clamps may be used following proper pre-operative preparation and draping of the abdomen and chest. The abdomen may be entered through a high transverse transabdominal incision extending along both costal margins, or through a right paramedian incision that may be converted into a thoracoabdominal diaphragm splitting approach depending upon the site, size and type of lesion. After inspecting the lesion and surrounding structures and lymph nodes and after determining operability, the hepatic triad structures are identified but no effort is made to isolate the common bile duct, common hepatic artery or portal vein. The inferior vena cava along the floor of the foramen of Winslow is recognized. The liver is mobilized by dividing the coronary triangular ligaments of the affected lobe. The falciform ligament is divided and used for traction. After the affected lobe is mobilized and if right hepatic lobectomy is contemplated, the cystic duct and cystic artery are clamped,

ligated and divided and the gallbladder is left intact with the right lobe. The occlusive clamp is placed on the healthy side of the liver to be retained adjacent the anatomical boundaries between the right and left lobes. The two hepatic resection clamps are placed parallel approximately 2.5 cm to the right or left of the occlusion clamp, depending upon the lobe to be resected. (Fig. 2, 3) An incision is made between both resection instruments and the distal resection clamp and resected liver is discarded. The raw surface of the healthy side of the liver is closed with continuous #1 chromic ethicon catgut on a half circle needle is continued over the resection clamp. The clamp is removed and a suture then continued superficial to the original suture line thereby giving the raw surface of the liver a two layer closure. The hepatic occlusion clamp is loosened and if there is any bleeding or biliary drainage from the resection site, these should be transfixed with 2-0 chromic catgut sutures. After hemostasis is maintained, the occlusion clamp is completely removed and, if possible, the resected surface is covered with omentum or falciform ligament. A drain is placed in the suprahepatic



FIGURE 2: Technique of left liver lobectomy.



FIGURE 3: Technique of right liver lobectomy.

LIVER RESECTION

and subhepatic pouches and brought out through a stab wound along the lateral aspect of the right upper quadrant of the abdomen. If a thoracoabdominal approach is utilized, the diaphragm is closed with interrupted double 2-0 silk sutures and a chest tube is placed and brought out through the 9th interspace and connected to an underwater seal. The abdomen is closed in layers with continuous double 0-chromic catgut for the peritoneum and posterior layer of the rectus sheath. The anterior layer of the rectus sheath and fascial layers are approximated with interrupted double 2-0 silk and 4-0 for the subcutaneous tissue and skin. If the thoracoabdominal approach is utilized, in addition to the conventional abdominal closure, heavy stay sutures of absorbable material are placed through the anterior lamellae of the rectus sheath.

If segmental resection is contemplated, the technique is the same. In performance of right hepatic lobectomy, due to the size and location of the lesion, it will be necessary to segmentally divide the right lobe as one approaches the anterior and posterior superior divisions. The non-traumatic clamps are oversewn with a 2 layer closure and re-applied until the entire lobe is removed. The operative procedure is performed without the use of temporary afferent occlusion of structures of the hepatic triad or vena cava and under normothermic conditions.

REPORT OF CASE

This 45 year old woman was admitted to the Doctors Memorial Hospital on January 30, 1975, with right upper quadrant abdominal pain, intermittent nausea, vomiting, weakness, and a 30 lb. weight loss since September, 1974. A right upper quadrant abdominal mass was evident on physical examination. Liver scan disclosed an extrinsic pressure defect in the anterior half of the right lobe of the liver representing abnormal liver tissue. On February 7, 1975, the abdomen was opened through a right paramedian incision. A large hepatic cell hepatoma was found involving the anterior segment of the right lobe with invasion of the mesocolon, right hepatic flexure and transverse colon with involvement of the intermediate, pericolic nodes. The abdominal approach was converted into a thoracoabdominal incision by splitting the diaphragm and extending into the right 9th intercostal space.

Because of invasion and involvement of the intermediate and pericolic nodes, anterior seg-

mental liver lobectomy was performed. After identifying the cystic duct and cystic artery, these were clamped, ligated and divided. Right hepatic lobectomy was performed by excising the anterior segment of the right lobe with the use of atraumatic clamps distally and proximal ligatures to occlude the proximal biliary ducts and hepatic blood supply. The clamps were placed distal to the occlusive sutures approximately 3" proximal to the site of extension of the lesion. Hemostatic #1 chromic catgut sutures were segmentally placed along the right anterior segment. This was excised segmentally until the entire lobe was removed. With a continuous running chromic catgut suture, the proximal atraumatic clamp was oversewn, the clamp was removed and the suture was run for a second time thus further reinforcing the closure of the raw surface of the liver. Right colon and transverse hemicolectomy were performed with subsequent anastomosis of the ascending right colon to the distal transverse colon. The thoraco-abdominal wound was closed in the same manner described under Technique.

At the time of her original liver lobectomy, the occlusive clamp had not been developed and proximal suture ligation was utilized to occlude the biliary ducts and hepatic arteries and veins. The patient was re-admitted to the Spartanburg General Hospital on 9/21/75 for a questionable metastatic lesion noted on chest x-ray. Her physical findings were essentially normal with no local or generalized lymphadenopathy nor hepatomegaly. Chest x-ray revealed some evidence of pulmonary scarring with a nodular lesion in the right lower lobe. Protein and carcinogenic embryonic anagen studies, skull series, brain scan were negative. A percutaneous liver biopsy revealed no evidence of neoplastic cells, and liver scan was negative. Repeat liver scans were found to be negative and there has been no recurrent hepatomegaly nor intra-abdominal masses or metastatic lesions. The patient is asymptomatic after 22 months and has gained 18 lbs. in weight.

DISCUSSION

The modified technique with hepatic occlusion and non-traumatic resection clamps differs from the controlled anatomical, finger-fracture and crush method techniques. The operation is performed expeditiously and is not time consuming and does not require the time necessary in isolating, ligating and dividing the hepatic triad

LIVER RESECTION

structures at the porta hepatis and the hepatic veins which drain into the inferior vena cava. Temporary afferent occlusion of blood flow at the porta hepatis under hypothermia as advocated by Clatworthy is not necessary. In the event that severe hemorrhage does occur in removing the right lobe, the hepatic triad structures and vena cava may be occluded for a period of 30 minutes without deleterious effects. The technique described differs from Lin's approach in that he utilized a crushing clamp which when released allows exposure of the biliary radicals and vessels by either the finger-fracture technique or the dissection with the back of a knife. The biliary structures are individually isolated, clamped, ligated and divided. The clamps for resection described by the author are atraumatic and are placed parallel to the occlusive clamp. The segment of the liver to be resected is divided between atraumatic resection clamps following which the resection clamp parallel and adjacent to the occlusive clamp is oversewn with continuous chromic catgut suture and removed. The suture is continued as a second layer securing hemostasis along the raw surface of the remaining liver. The operation is done in a relatively bloodless field and the time is considerably shorter than that described in the above techniques. In certain cases, with large cirrhotic livers or diffuse lesions involving a single lobe when it is not possible to utilize resection clamps, the hepatic occlusive clamp may be used in conjunction with the crush or finger-fracture technique.

CONCLUSION

The technique of liver resection with hepatic occlusive and hepatic atraumatic clamps can be performed without hilar dissection, caval tapes or afferent occlusion or hypothermia. The instruments facilitate liver resection thus reducing operative time and blood loss. □

The above instruments may be obtained from C. J. Pilling & Sons, Fort Washington, Pennsylvania.

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BREAST CANCER: A REPORT ON A REPORT WHICH WAS SPONSORED BY THE WHITE HOUSE, THE NATIONAL CANCER INSTITUTE, AND THE AMERICAN CANCER SOCIETY, NOVEMBER 22 AND 23, 1976

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A two-day review of breast cancer was organized by the Breast Cancer Task Force of the National Cancer Institute. The meeting was made possible by funds generated by Mrs. Gerald R. Ford. I would like to present to you the highlights.

SCREENING FOR BREAST CANCER

What is the proper role of breast cancer screening? There have been major criticisms of present programs. Dr. John C. Bailar, III, M.D., Ph.D., has emphasized the risk of mammography causing breast cancers at some future time and questioned the wisdom of adding mammography to the annual breast examination of U. S. women at risk. Other studies from the Health Insurance Plan of Greater New York have concluded that the benefits of screening for breast cancer have resulted in no reduction in breast cancer mortality in women under fifty. There seemed to be mutual agreement that periodic breast screening at age fifty years and over is justified. The risk for breast cancer is minimal, particularly with the development of newer equipment where the amount of ionizing irradiation absorbed by the breast is minimal. In women under fifty, there should be significant indications for mammography such as family history, cancer in the opposite breast, evidence of large duct hyperplasia.

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It was concluded that the most important technique for screening in women under fifty without clear-cut indications for mammography should be the education of women to self examination. This should be taught to school girls. The Health Insurance Plan of New York has documented a significant yield of early breast cancers, that is, breast cancers that are less than two centimeters in their greatest diameter, from young women via self examination.

A summary review of other biophysical methods of diagnosing breast cancer, i.e., ultrasound and thermography, concluded that spatial resolution currently available with ultrasonograms is inadequate for the diagnosis of early breast cancer, and that thermography to date has also been unreliable.

If we assume that we can indeed implement self examination of the breast in younger women and mammography in women fifty years or greater, we are finding a large volume of patients with what is currently referred to as "minimal breast cancer." Dr. Ackerman defines minimal breast cancer as a carcinoma of the breast measuring one centimeter or less. Most commonly the lesions will be fairly well differentiated invasive ductal cancer. The more difficult lesions for diagnosis are those which will represent either lobular carcinoma in-situ and/or proliferative intraductal lesions. The difficulties in assigning proper therapy to the patients with lobular carcinoma in-situ was reviewed. Dr. Ackerman emphasized the bilaterality of the disease and

BREAST CANCER

how often when there is the subsequent genesis of invasive carcinoma it may well be in the opposite breast.

ORAL CONTRACEPTIVES

The influence of oral contraceptives on breast disease was discussed at some length. Dr. Robert Fechner made the observation "No group of drugs has ever been given to as many people with less information." Studies to date show no increased incidence of cancer has been proven, and there is some evidence that there might be a decrease in benign breast disease in women using hormones for two or more years. The women who have developed breast cancer while on the oral contraceptive are roughly the population one would expect to have developed cancer by chance. In this group of patients that have developed cancer, the histologic types, the involvement of regional lymph nodes and the size of the tumor, have all been what one could have predicted by chance with the calculated percentages coming from retrospective studies. The most important statement, however, to many of us was that all contraceptives have had widespread use for little more than a decade. We do not know the influence of oral contraceptives on breast cancer today and must await the results of prospective longterm studies.

SURGERY

The degree of surgical resection required for optimal treatment of breast cancer remains controversial, but is possibly less controversial than a few years ago. It is now concluded by those espousing muscle sparing resections that the regional lymph nodes should be removed so that presence or absence of cancer in these regional lymph nodes can be ascertained for future therapeutic strategies. The recently completed studies have reflected information described years ago, i.e. that when the axilla is clinically negative, an incidence of cancer will be found in 34 to 38 percent of the clinically negative lymph nodes. Conversely, patients with clinically positive lymph nodes in association with breast cancer on microscopic analysis show that twenty-five percent of these so-called "clinically positive" metastases are simply hyperplasia. With the finding of early breast cancer and smaller lesions, the muscle-sparing modified radical

mastectomy gives similar control over local disease as the more extensive procedures.

RADIATION THERAPY

Dr. Luther Brady reviewed the role of postoperative radiation therapy in patients with breast cancer, and emphasized that in statistical reports we can measure the success of our treatments for breast cancer not only by survival, but also by local and regional control. In local treatment, ionizing irradiation can be of great value in minimizing recurrent disease in the chest wall. It is appreciated that such treatments will not affect the five-year survival. It is fairly well-documented that the patient considered an appropriate candidate for postoperative irradiation therapy has a significant volume of breast cancer which we can assume is widely disseminated. Systemic therapies should be initiated as well as postoperative irradiation therapy so that this disseminated cancer will be hopefully contained.

Studies were presented of 150 patients with carcinoma of the breast which were poor candidates for surgery or had refused surgery. The patients were given 5000 rads to the breast, 5500 rads to the clinically positive axilla, and there had been very successful local control rate in the entire group of patients. It was emphasized this represented an alternative therapeutic offering to the patient with breast cancer. Early results were comparable to mastectomy plus radiation therapy. The longterm results at this time are not available.

ADJUVANT CHEMOTHERAPY

Dr. Gianni Bonadonna, from Milan, updated his highly publicized study on adjuvant chemotherapy. Cytosan, Methotrexate, and 5-Fluorouracil (CMF) were given the patient twelve days of every month for one year. For certain populations, CMF seems to be advantageous in prolonging the disease-free period. One of these groups is women who are premenopausal. In this group, the most significant benefit from the drugs was found when the women stop menstruating secondary to the initiation of drug therapy. This introduces the concept of the advantage from the chemotherapy being secondary to a change in the hormonal environment of the tumor growth.

BREAST CANCER

Postmenopausal women at forty-four months seem to no longer have any major advantage from the CMF regimen versus an untreated matched control group. Another group wherein the CMF seemed to be of considerable value was when there were four or more lymph nodes involved with metastatic cancer at the time of surgery. The drug regimen as concluded by Dr. Bonadonna is a tolerable combination. Dr. Bonadonna emphasizes, however, its effect on survival as well as its potential toxicity will require long-term analysis and more time is required to conclude whether there are beneficial effects.

ENDOCRINE MANIPULATION

There has been a renewal of interest in endocrine manipulation of patients with metastatic breast cancer prior to utilization of chemotherapy as the result of the development of steroid hormone receptors. A cytoplasmic estrogen receptor (ER) is being found in approximately two-thirds of metastatic breast cancers. If this ER is present, a fifty percent response rate has been described following major hormonal ablative endocrine therapies. It is felt that predicting endocrine responsiveness can be further improved by measuring the estrogen receptor in nuclear material rather than the cytoplasmic receptor. Also a progesterone receptor (PgR) may provide greater specificity than the "ER" in predicting endocrine response. Such hormonal manipulation is less toxic to the patient than current chemotherapeutic regimens and it may well be that the patient with hormonally responsive metastatic breast cancer can be precisely identified with these techniques.

It may also be that the reluctance for the patient with metastatic breast cancer to undergo the morbidity of surgical ablation can be minimized with newer methods of adrenal suppression. Exploiting aminoglutethimide in combination with a synthetic glucocorticoid, hydrocortisone, preliminary studies on fifty evaluable patients have shown objective tumor regression of 33 percent with the regression lasting from three to ninety-two months. This regimen is felt by its proponents to be simple, nontoxic, and effective in inhibiting estradiol synthesis.

There was a brief review of a group of compounds which have been described as antiestrogens. These compounds are not necessarily steroids but are able to decrease the uptake of

estrogens *in vitro* and *in vivo*. The compounds discussed were clomiphene citrate, nafoxidine, and tamoxifen, nafoxidine and tamoxifen being roughly equally active. With a smaller number of patients reported, they observed a response rate of thirty percent with a median duration of nine months. It was their conclusion from their early data that tamoxifen was the preferred compound to nafoxidine because toxicity was noted in the skin of patients treated with nafoxidine. A prospective randomized trial with the compounds is underway. This is a very interesting group of compounds. We shall eagerly await further and better documented studies.

INFORMED CONSENT

The final session was essentially controlled by prominent and vigorous lay persons who amongst other things discussed in some detail the problems of informed consent. It was emphasized that the choices available for primary and secondary treatment should be more widely disseminated. There was the expressed wish that the patient have access to multiple disciplines involved with breast cancer before commitment to a definitive strategy be accomplished. It seemed to this observer that we shall have in the future more lay persons involved in defining various priorities for research and education in breast cancer. It is hoped this will lead to greater understanding and greater trust. It may also lead to "doctor shopping" with the patient ultimately dictating her own treatment. Certainly, however, the consumer is now considered a vital member of the "health team." □

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THE ROLE OF RADIATION THERAPY IN THE TREATMENT OF BREAST CANCER, A REASSESSMENT

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INTRODUCTION

There should be no competition among the various treatment doctrines in outlining the treatment program of a cancer patient. Cooperation and a multidisciplinary approach are needed. Such an approach is now applied to breast cancer and many advocate that nearly all patients received combined chemotherapy. This may ultimately prove to be desirable; meanwhile, we must not let our thinking be guided by a wave of popularity and forget traditional proven methods of therapy. There is a proper place for all acceptable forms of therapy. Oncologists should seek to measure every shred of evidence and weigh each ounce of experience and bring it all into light to find the optimal timing for each form of treatment.

STATEMENT OF THE PROBLEM

Where does surgery stand? Halsted fashioned the radical mastectomy, not to cure breast cancer, but mainly to insure local control during the remaining days of the patient's life.⁴ Local control had escaped surgeons in 40-70 percent of patients treated by previous surgical methods. With respect to complete local control, radical mastectomy alone is not 100 percent successful except in the patient with early disease. Dr. Patterson from Manchester was the first to point this out in one of the world's first randomized breast treatment studies.⁸ He demonstrated that even with the moderate dosage kilovoltage x-rays the local control rate was markedly reduced when compared to surgery alone. Now with modern megavoltage therapy, irradiation can virtually eliminate nodal and chest wall recurrences.

The recent published studies by Fisher and Bonnadona are also demonstrating an ex-

tremely high recurrence rate after surgery alone, especially in the pre-menopausal patient and those with four or more lymph nodes positive.^{1, 2} Surgery alone then is an accepted method of treatment for diagnosis, eradication of very early disease, and assisting in the palliation of non-curable advanced breast tumor patients.

It is therefore, appreciated that for more advanced disease adjunctive therapy becomes necessary. From well accepted data it is easy to prove the worth of radiation therapy in several areas of adjunctive breast management, and it is not too difficult to show that irradiation is lethal to breast tumor cells. These well known and accepted areas are:

1. Post-operative treatment when lymph nodes are positive.
2. Palliation in metastatic bone and brain disease.
3. Local palliation and control in Stage III inoperable breast tumor patients.

By using the published works of such authorities as Moss, Guttman, McDonald, and Kaae, we could make a respectable case for treating all patients with less surgery and more radiation therapy.^{7, 3, 6, 5} It appears then, that local control could be achieved by various means and does not seem to be the important issue. Should we abandon the accepted principles of surgery plus post-operative radiation therapy and give virtually all patients combined chemotherapy or should we wait several years for the present studies to mature? We share the hope with all oncologists that chemotherapy will successfully eliminate the need for routine post-operative irradiation, and will also substantially increase the survival rate. Nevertheless, we are somewhat skeptical about the ultimate ability of chemotherapy to permanently render the control rate demonstrated by the 24 month data for Bonnadona, because in most tumor systems such

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as lung, GI, and breast cancer, chemotherapy has never been shown to be permanently lethal, but merely suppressive. The tumor systems where permanent control seems evident are very few and tend to be highly undifferentiated with rapid cell turnover such as lymphosarcomas or embryonal cell tumors. In order for combined chemotherapy to be proved effective and worthy of the recent acclaims, it will have to stand the test outlined in Table 1.

TABLE I
PREMISES AND CONSIDERATIONS

1. If combined chemotherapy is to eradicate distant metastases and prevent dissemination, then it must prevent local recurrences equally as well as radiotherapy.
2. Since breast cancer patients may relapse as late as 10 to 15 years, will many patients have to continue combined chemotherapy indefinitely to inhibit tumor growth? If so, the price may exceed the gain.
3. There is evidence that combined chemotherapy inhibits ovarian function in that one of its mechanisms of action is mediated through hormonal reduction. If so, this will have to be tested with controlled studies.
4. The morbidity, late sequelae, and the lethal side effects are nil with radiation therapy. At the present time, we can not make this statement about long-term chemotherapy, although there have been deaths reported from the use of S.M.F.

Many years will be needed with close scrutiny to answer these questions. There is another historical fact; however, that also raises some skepticism. Most randomized prospective studies that have been carried out on breast cancer for ten years or more have failed to demonstrate a significant difference in results regardless of the methods of treatment employed. For instance, various methods of surgery, radical versus simple, with or without radiation therapy, surgery plus the removal of the ovaries versus surgery alone, surgery plus single agent chemotherapy versus surgery plus radiotherapy, have all produced comparable ten year survival figures.⁹ It follows then, that if improved survival is the

magic searched for, it may also elude combined chemotherapy although the survival free interval and local control rate may vary.

What is a logical conservative treatment policy? Before formulating such a policy the following variables must be considered prior to any treatment approach.

1. Condition and life expectancy of the patient.
2. Age of the patients.
3. Menopausal and hormonal status.
4. What the patient will accept in the way of treatment.
5. The ability of physicians or treatment center to render the therapy outlined.
6. Mentality and reliability of the patient.
7. Clinical size and location of the tumor.
8. Ancillary tests such as scans and estrogen receptor levels.
9. Pathological size, grade and classification of tumor.
10. Invasive nature and spread of tumor.
11. Extent and number of nodes involved.
12. Type of operation employed.
13. Margins of resection.
14. Toxicity of the combined treatment modalities.

After considering this list, it becomes obvious that a rigid or dogmatic approach cannot be undertaken, and some element of individualization must be carried out for each patient.

SUGGESTED TREATMENT POLICY

1. Surgery:

The radical or modified mastectomy is still recommended for stage I and II breast cancer patients because it insures along with radiotherapy when indicated, the best local control and more importantly, an accurate staging procedure.

2. Adjunctive Therapy:

A. Pathological Stage I — After proper surgery, no additional therapy is recommended except for patients with medial-quadrant lesions who should have post-operative radiation to the internal mammary and supraclavicular nodes.

B. Pathological Stage II — Patients with a good prognosis* and less than four level one nodes positive, need no post-operative radiotherapy or chemotherapy. Patients with a

* Good Prognosis: good pathological rating, i.e., low grade histology, margins clear and no vascular or lymphoid invasion.

RADIATION THERAPY

good prognosis and more than three positive nodes; or nodes involving level 2 or 3, should have post-operative irradiation to the node drainage areas. Patients with a poor prognosis† and any positive nodes need both added radiotherapy and chemotherapy. There may be a place for ovarian ablation in the pre-menopausal group, but in general, this treatment is best reserved for overt recurrent disease so an assessment can be made of the response.

C. Stage III (Clinical Assessment) — Most of these patients will be considered inoperable; therefore, initial treatment should be definitive radiotherapy to the breast and nodes. Surgery is reserved for those that need simple mastectomy removal of residual disease. At the present time, no further treatment is recommended until the first evidence of recurrence or metastatic disease, at which time combined chemotherapy or hormonal manipulation should be carried out. The method selected should depend on the menopausal status, age, and condition of the patient.

DISCUSSION OF TREATMENT POLICY

The treatment policy outlined for Stage II patients needs elaboration. The prognosis within this group may vary from 75 percent five year survival down to 15 percent five year survival. The individualization suggested can be well used here to completely cover those patients with proper therapy when it is necessary, but not overtreating those patients with early lesions that do not need it. In the past it has been a sound practice and very acceptable to use only one or two modes of therapy at a time, saving the next most likely type of treatment for the next relapse. Now, biologically, it may make sense to use "shot gun therapy" in some instances to achieve total tumor eradication or achieve simultaneous local control as well as control of metastatic disease. If such therapy is used in some situations, it should be well controlled so as to make the data from future results meaningful.

There will be an argument with the policy of not initially giving all Stage III patients combined chemotherapy as part of the radiotherapy-surgery treatment. However, when this is done, the patient truly has had "shot gun therapy," and

if there is no response or a relapse occurs, hormonal therapy may be less effective, and therefore, the physician will have nothing to fall back on. Also, if a remission occurs from treatment it is usually more complete and long lasting with hormonal manipulation.

SUMMARY

The recent short-term claims for combined chemotherapy for breast cancer appear very encouraging. However, there are reasonable grounds for skepticism concerning the ultimate role of chemotherapy. Therefore, we advocated a cautious approach to radical change in the treatment policy. Indications for radiotherapy are established and a conservative approach to every patient is outlined utilizing all three treatment modalities. "Shot gun therapy" may have a place in the future, but if we are to know the extent of its value, it must be controlled with traditional treatment methods. □

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† Poor Prognosis: opposite pathological rating, i.e. high grade tumor, close or inadequate margins and very invasive.

TRANSSPHENOIDAL HYPOPHYSECTOMY IN THE MANAGEMENT OF METASTATIC BREAST CARCINOMA

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INTRODUCTION

The relationship between hormonal target tissues and their neoplastic counterparts in breast carcinoma is well established.^{1, 2, 3} This relationship has resulted in attempted control of metastatic breast carcinomas by hormonal manipulation.

The purpose of this paper is to review certain aspects of hormonal manipulation for metastatic breast cancer and to discuss the role of transsphenoidal hypophysectomy.

SELECTION OF CANDIDATES FOR HORMONAL MANIPULATION

A multi-disciplined approach for the treatment of metastatic carcinoma of the breast has been found to provide the optimal diagnostic and therapeutic techniques related to the complex problems of treatment in this disease.⁷ Oberfield⁷ has suggested that candidates for hypophysectomy or adrenalectomy should be determined from a patient population according to certain criteria. These criteria can be summarized as follows: (Figure 1)

I. **PREMENOPAUSAL PATIENTS:** Bilateral oophorectomy is offered initially. If there is no response to oophorectomy, patients become candidates for chemotherapy. If there is a response to oophorectomy, but relapse occurs, hypophysectomy (or bilateral adrenalectomy) is offered.

II. **POST-MENOPAUSAL PATIENTS:** Estrogen therapy is offered initially. If there is no response to estrogen therapy, patients become candidates for chemotherapy. If there is a response to estrogen therapy, but re-

lapse occurs, hypophysectomy (or bilateral adrenalectomy) is offered.

III. **MENOPAUSAL PATIENTS:** Patients who are more than 45 years of age with irregular periods or are within one year of cessation of menses are treated with oophorectomy with a similar type of treatment plan as the premenopausal patients. Patients within five years of cessation of menses are given androgens and then treated similarly to the post-menopausal patients according to the response.

It is estimated that approximately 33 percent of all patients can benefit from endocrine therapy.³ Most studies imply that prolactin and growth hormone play the primary role, but that estrogen is also involved.^{2, 3} Although the mechanism by which oophorectomy works is not completely understood, experiments suggest that estrogen deprivation results in a rapid decline of prolactin release, and hence, tumor regression.² Remissions after oophorectomy are highly satisfactory but are often short-lived.⁸

Secretion of a precursor substance to estrogen by the adrenals is the rationale for adrenalectomy.² The objective response to bilateral adrenalectomy has been 39-50 percent. A previous response to oophorectomy increases the likelihood of response to adrenalectomy.

The rationale for hypophysectomy is the evidence that prolactin, and possibly, growth hormone have direct roles in the hormonal control of mammary tissue.^{2, 3} Experimental evidence for direct prolactin control indicates that prolactin, alone, is able to reactivate mammary tumor growth for a short time after ablation of the ovaries, adrenals, and the pituitary gland in rats.

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TRANSSPHENOIDAL HYPOPHYSECTOMY

However, further clinical confirmation of a role of prolactin is disconcerting in that five out of eight patients who had an objective response to hypophysectomy had elevated prolactin level following surgery.³ The role of prolactin in tumor progression is, therefore, incompletely understood.

A 36-58 percent response rate to hypophysectomy has been reported in unselected cases. In patients who have previously responded to oophorectomy, response to subsequent hypophysectomy has been as high as 86-91 percent.^{5, 8, 10} Beneficial responses after estrogen or androgen therapy in post-menopausal patients indicate that they will have a favorable response to hypophysectomy. Skeletal metastases appear to respond better than local or visceral metastases. Longer remissions are observed with increasing menopausal age. Single system involvement responds better than multiple systems involvement. A remission period of greater than twelve months has been observed in 50 percent of responders, and a previous response to hormonal therapy or oophorectomy increases the number of patients who have a remission

lasting over one year to 63 percent and 75 percent, respectively.¹⁰

HYPOPHYSECTOMY VERSUS ADRENALECTOMY

Since hypophysectomy removes the source of prolactin and growth hormone, in addition to suppressing the adrenal cortex, hypophysectomy should be theoretically superior to adrenalectomy for therapy of metastatic breast cancer. However, the experience of most investigators suggest that the overall response rate, and the duration of remission following response, is similar for the two procedures.² Therefore, the choice of hypophysectomy versus bilateral adrenalectomy is mainly decided by the operative morbidity and mortality. The transfrontal approach for hypophysectomy carries a 6.7 percent mortality rate. The most frequent post-operative complications are a decrease in visual acuity and intracerebral hematomas.⁵ Adrenalectomy carries a mortality of 2.5 to 7.3 percent; post-operative complications include pneumothoraces, intra-abdominal hemorrhages, and pulmonary at-

Figure 1

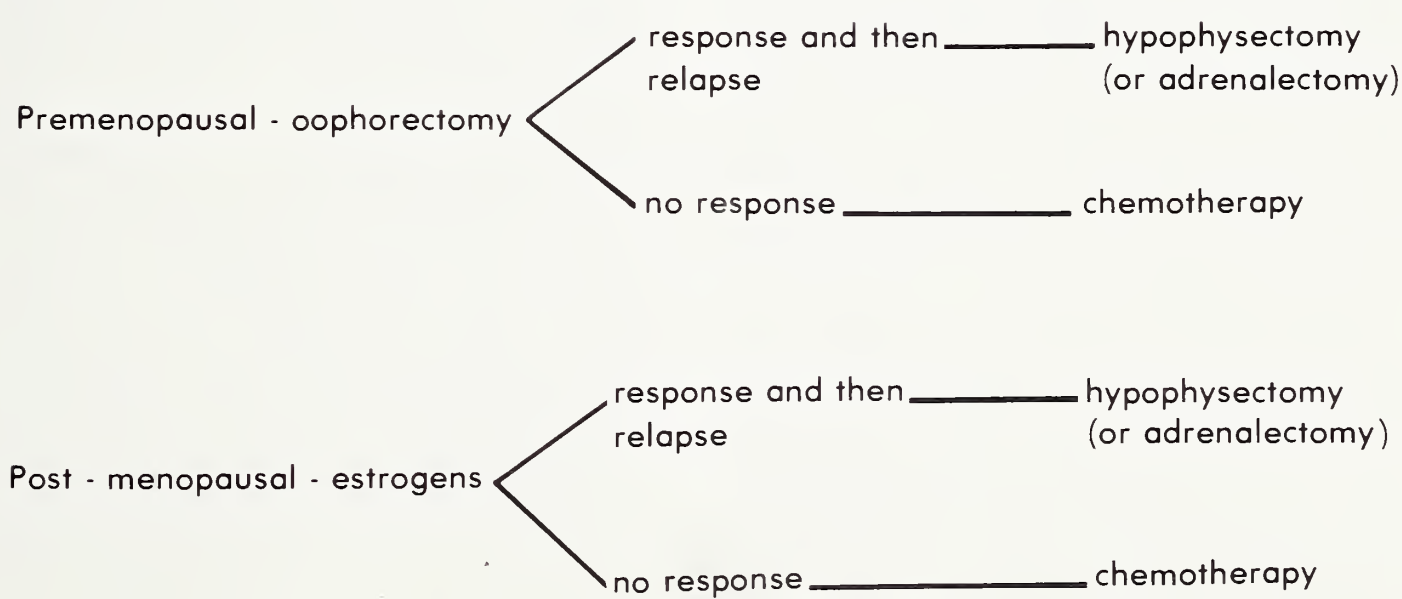


FIGURE 1: Suggested treatment plan for patients with metastatic breast carcinoma according to pre- or post-menopausal status (by Oberfield et al).

TRANSSPHEOIDAL HYPOPHYSECTOMY

electasis.^{5, 11} With the extracranial transsphenoidal approach to the pituitary sella, the mortality rate for hypophysectomy is 1% and post-operative complications are minimal.^{4, 10}

TRANSSPHEOIDAL HYPOPHYSECTOMY

Under general endotracheal anesthesia, the sphenoid sinus can be approached from the midline by a sublabial, transsphenoidal approach^{4, 6} or approached laterally by an incision in the medial superior orbit.¹⁰ With either method, an operating microscope is essential after the sphenoid sinus has been entered. The anterior wall of the sella is visualized and removed. The pituitary gland is removed after the stalk has been sectioned. Packing of the sella and sphenoid sinus with fascia and fat from the anterior thigh prevents the occurrence of an empty sella syndrome and CSF rhinorrhea.

Post-operatively, patients usually experience diabetes insipidus which generally clears without treatment. Antibiotics are used only if pathogens are present in the post-operative cultures or if cerebral spinal fluid is encountered during the dissection. The occurrence of meningitis and CSF rhinorrhea ranged from 3-6 percent in early reports.^{4, 10} The fat graft has all but eliminated CSF rhinorrhea and institution of appropriate antibiotics based on pre-operative nose and throat cultures has resulted in prevention of meningitis. Patients must be maintained on cortisone ranging from 37.5 mgm to 50 mgm per 24 hours and 2 grains of desiccated thyroid daily. A growth hormone level is determined post-operatively to insure that the entire pituitary gland has been removed (hypophysectomy). The

mortality rate for patients with this operation even with an advanced disease is approximately 1 percent.^{4, 10}

SUMMARY

The low morbidity and mortality associated with the transsphenoidal removal of the normal pituitary gland in comparison with a transcranial hypophysectomy or an adrenalectomy makes this approach an effective method for treating metastatic carcinoma of the breast. □

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CURRENT CONFLICT IN BRITISH MEDICINE: WARNING OR BLUEPRINT?

LAYTON McCURDY, M.D.*

During the year of 1974-75, I was on sabbatical leave at the Maudsley Hospital, the main psychiatric teaching hospital associated with the University of London. During that year there was great strife between the medical profession and the government-operated National Health Service (NHS). I will trace the events related to that conflict, and outline my views of the fundamental and critical dilemma of operating in a socialized system in a nation democratic in form, socialistic by intent, and independent by instinct. Inevitably, observers will draw comparisons and applicability to the contemporary American scene. The British experience can serve as both an example and a warning.

Three groups of doctors negotiate contracts with the government-operated health service: general practitioners, consultants, and junior hospital doctors. They are all represented by the British Medical Association in negotiations with the British government. The pathway to becoming a practicing doctor in England is lengthy. The junior hospital doctors include new graduates from medical school up through senior registrar. The new doctor is a house officer during his first year post medical school. The following year he is a senior house officer. Subsequently, there are several years of being a registrar in his chosen specialty field and, ultimately, a senior registrar in that field. The young practitioner remains a senior registrar awaiting an appointment as a consultant — a medical specialist. It is not unusual to find senior registrars who have served at that rank for three to five years.

As a rule, qualified doctors who are headed for general practice serve a year as house officer, a year as senior house officer, and then enter practice. Recently, three-year programs in family medicine have been started.

During these years as house staff, young doctors serve largely under the direction of hospital consultants (specialists). After completion of this training, the general practitioner largely limits his/her work to outpatients. The general practitioner's pay from the NHS is determined by the number of patients he has enrolled in his practice, while the consultant is compensated by the number of weekly half-days ("sessions") worked for the National Health Service. A session is defined as a three and one-half hour block of time, and the maximum number of sessions that can be worked in a week is 11. During the year 1974-75, there were about 12,000 consultants employed in the NHS. Of this number, approximately half earned additional income from private practice. This private practice was more prevalent in London than in rural communities or small cities. Of the approximately 500,000 hospital beds in National Health Service Hospitals, only 1 percent (500) are assigned for use by private patients. Patients admitted to these beds pay a daily charge. The attending consultant also collects a fee. During 1974-75, the cost of occupying a National Health Service bed was \$68.00 per day. There are a few private hospitals operating in England and Wales. The cost of hospital beds in these hospitals is somewhat higher.

Following the February, 1973 elections, the Labor Party took office. Shortly afterwards, a "working party" chaired by Dr. David Owen, a Labor member of Parliament and Under Secretary for Health, was formed. This working party,

* Professor and Chairman, Department of Psychiatry and Behavioral Sciences, Medical University of South Carolina, Charleston, South Carolina

CURRENT CONFLICT

made up of members of the government as well as members of the British Medical Association, set about designing a new contract system for consultants. In November (1974) after several months of work with seemingly little progress, the situation was taken over by Mrs. Barbara Castle, Secretary of State for Social Services. As a member of the left wing of the Labor Party, Mrs. Castle had previously vowed to eliminate private practice from NHS hospitals. The specialist members of the British Medical Association (BMA) were greatly disturbed by this turn of events.

One of the problems felt by the consultants was the matter of overtime. Because of the growing clinical workload over the years, many consultants had been working well over their contracted number of sessions without additional pay. This work load led to dissatisfaction and growing demands for a change in the contract system which would provide compensation for extra work. On December 20, 1974, Mrs. Castle outlined her proposed new contract. She had won government approval of this contract with much difficulty inside the Labor Cabinet, some of whose members were very much concerned about the cost of the new package. Her December 20th proposal announced that the unpaid overtime would be ended. In the future, any extra work would be paid for separately.

Another feature was the establishment of a pay difference for those consultants who worked full-time for the National Health Service and those who balanced their income between government work and private practice. Under the new contract, the full-time men would benefit substantially while part-time people would benefit — but not as much. Her move substantially favored the practitioner who would commit full-time to the National Health Service and not participate in private practice. This move seemed to be consonant with Mrs. Castle's previously declared intent to phase out private practice in NHS hospitals. Large numbers of hospital consultants felt that this was a substantial step toward the elimination of private practice of medicine in Britain altogether. Representatives from the British Medical Association felt that this move would substitute new and greater grievances for the existing ones. They also felt it would ultimately destroy the independence of doctors and dentists in hospital services. Many consul-

tants began a "work-to-rule" course of action which meant that the consultant worked only the number of hours he was paid for. Health care ground down to a very slow pace.

During the course of these negotiations, large numbers of the specialists felt that they were not being fairly represented by the British Medical Association. An additional organization, the Hospitals' Consultants and Specialists Association, was also reacting to the offers and the negotiations. This group tended to be more militant in its demands. Many members were proposing a totally different system under which consultants would be paid on a fee-for-service basis. This proposal was so foreign to the Labor Party's concept of the National Health Service that it was never seriously considered.

All of these events focused attention on the hidden functions and operations of the consultant system. One of the most controversial issues was the secretive system of merit awards for consultants. This merit award system was one of the intended victims of Mrs. Castle's new contract proposal. In years past, one-third of the consultants received a financial merit award. Once the award was made, it was continued for life. Table I illustrates the amount of the merit awards. This system was first set up when the National Health System started in 1948. While the official methods for the recipients of these monies was publicized, there seemed to be much secrecy and suspicion about the *real* selection process. Committees in some communities would deliberate secretly and send nominees forward to London. The names of the recipients seemed to be secret. As could be expected, a great mythology developed around these awards. Certain specialties fared better than others; certain regions of the country fared better than others. Even though the awards were kept secret, some information leaked out. It was apparent that one stood 8 times the chance of getting a high award if one worked in a teaching hospital. Because so many teaching hospitals are in London, one stood an inordinately better chance of getting an award if one worked in London. To this observer, the merit system seemed improper and chaotic.

Meanwhile, the tempo of dissatisfaction quickened. Several doctors published articles in the newspapers complaining that the consultants were getting what they had always deserved. Their claim was that many consultants did not

TABLE I
Merit Awards for Consultants*

C Award	\$3,313.20	3,000 recipients
B Award	\$7,788.00	1,311 recipients
A Award	\$13,266.00	453 recipients
A+ Award	\$17,483.40	124 recipients
		4,888 total recipients.

Total Number of Consultants in the U. K. — 12,500

* These figures are converted to dollars at the rate of \$2.40 to the Pound which was the rate in the spring of 1975.

render the National Health Service the time for which they were paid. In a column appearing in the January 16th (1975) *Times*, Dr. M. H. Pappworth made a rather strong statement that approximately 25% of hospital consultants exploited the National Health Service, utilizing junior doctors to perform services on private patients for which the consultants received fees. He had numerous anecdotes documenting his claims. He also complained about the merit award system pointing out that 11 million pounds (then approximately \$25 million) was secretly distributed to consultants annually without any measure of public control. The following day in a letter to the editor, the Secretary of the British Medical Association retorted that he had authoritative evidence that the average consultant worked 25 hours a week over and above his contracted time. In the subsequent 60 days (January and February), the whole procedure seemed to be at a standstill. The “work-to-rule” was in effect. Representatives of the Consultants’ Associations met continuously with the representatives of the Labor Government. Finally, the consultants contacted the Prime Minister requesting that he step into the conflict. He agreed to par-

ticipate only if the consultants immediately stopped their “work-to-rule” action.

In early March, a new set of circumstances developed. The National Union of Public Employees (NUPE), one of the major unions which have non-medical hospital employees as members, urged their members to serve National Health Service patients preferentially neglecting private patients to counter the effects of the “work-to-rule” by consultants. The Union asked the Prime Minister to immediately introduce common waiting lists for both private and Health Service patients. Very long waiting lists existed for elective hospitalizations of Health Service patients. Even though private beds represented only 1% of the total, the waiting list for these private beds was much shorter. The ability of the private patient to “jump the queue” had long been a sore subject. The undemocratic aspect of 2 waiting lists was one of the fundamental reasons given for the elimination of private beds in the National Health Service Hospitals. The results of this union’s actions caused several hospitals to stop admitting private patients. In the wake of this action, doctors in many hospitals began to contribute their own funds toward the equipping of nursing homes for use as private patient hospitals.

The consultants in conjunction with the British United Provident Association Limited, which provides 80% of the private health insurance in Britain, agreed that they would “go it alone.” They would finance the construction of large numbers of private beds in National Health Service Hospitals. The front page of the *Times* for March 15th headlined “Militant Consultants Ready to Force Closure of Hospitals.” That article by Neville Hodkinson began “Hospitals’ consultants yesterday stepped up their campaign over pay and conditions in the National Health Service by announcing that they are prepared to force the closure of Casualty Departments, hospital wards, and even complete hospitals where they consider standards of care to be inadequate.”

So by mid-March, (1975) there appeared to be a standstill in negotiations between the consultants and the government with increasingly hostile activity between the non-medical unions and the consultants. At this point, the Labor government began to be preoccupied with the campaign for the impending referendum concerning

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Britain's continuing membership in the European Common Market. The prelude to this referendum promised to divide the government and all of the Labor Party. Many powerful members of the Labor Party stood on opposite sides. Mrs. Castle and the Prime Minister were on opposing sides of this issue. This was the first referendum in the history of Great Britain, the world's oldest democracy. The crisis with the medical consultants seemed to be obscured by the attention turned to this crucial issue.

While the medical crisis moved off the front pages of the newspapers, events centered largely around the doctors' reduced activity, — the so-called "work-to-rule." Many letters in the newspapers indicated great disagreement among noted consultants in the London area. Lord Platt, distinguished past president of the Royal College of Physicians, felt that it was undignified for doctors to "strike." He extolled the virtues of reason. The Association of University Clinical Academic Staff representing those doctors who worked in teaching hospitals largely paid by the universities, not by the National Health Service, invariably found themselves halfway between, sitting on the ideological fence. Local union

chapters of hospital workers participated in infrequent but troubling "wildcat strikes" against specific hospitals. Some hospital union groups forced hospital administrators to set up committees of doctors and non-professional union members to determine the appropriateness of medical treatments for specific patients. During those weeks much appeared in the newspapers concerning the increasing emigration of British doctors and the fact that they were being replaced by immigrants from British Commonwealth countries.

In early April attention focused on the fact that the periodic review of pay for doctors was begun by an impartial arbitration board. This board was considering the amount of pay, not whether doctors would be paid under a new contract system. This method of determining salary increases is widely used with the industries and the professions paid by the British government.

The new salary scales appeared in the newspapers on April 19th. The increases were approximately 30% for junior doctors in training as well as for consultants. Table II gives the 1974-75 figures and the new figures that were passed in April of 1975. The figures are given for registrars,

TABLE II

N H S SALARIES*

	<u>1974-75</u>	<u>1975-76</u>
Registrar	\$7,700	\$10,120
Senior Registrar	\$9,080	\$12,100
Consultant	\$11,952- \$16,492	\$16,579- \$23,515

* These figures are converted to dollars at the rate of

\$2.40 to the Pound which was the rate in the spring of 1975.

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senior registrars, and consultants. The figures have been converted to U. S. dollars at an exchange rate of \$2.40, the rate at the time. In the same edition, it was announced that the retail price index had risen by 2% bringing the annual rate of inflation to 25.4%. This announcement of the review bodies' pay award for doctors was made 2 hours after the British Medical Association had called off its "work-to-rule" sanctions. The *Times* editor expressed it as follows: "So with conciliatory gestures from both sides, it can be hoped that we may see the resumption of a less rancorous discussion of the issues that still separate the profession and Mrs. Castle." The editorial went on to say "in the perennially stormy relationship between doctors and the Department of Health, there are many points of potential conflict still to be settled. Private beds in National Health Service Hospitals and the wider future of private practice are the most immediate. The most significant is the whole question of priorities in the Health Service in a time of economic crisis. The award has not melted ideological differences nor wiped out the mistrust of Mrs. Castle engendered by her weak response to the activities of members of the non-professional unions. But a new atmosphere can now be established, and one must hope that it will be long before the profession thinks of returning to the methods it has resorted to this year."

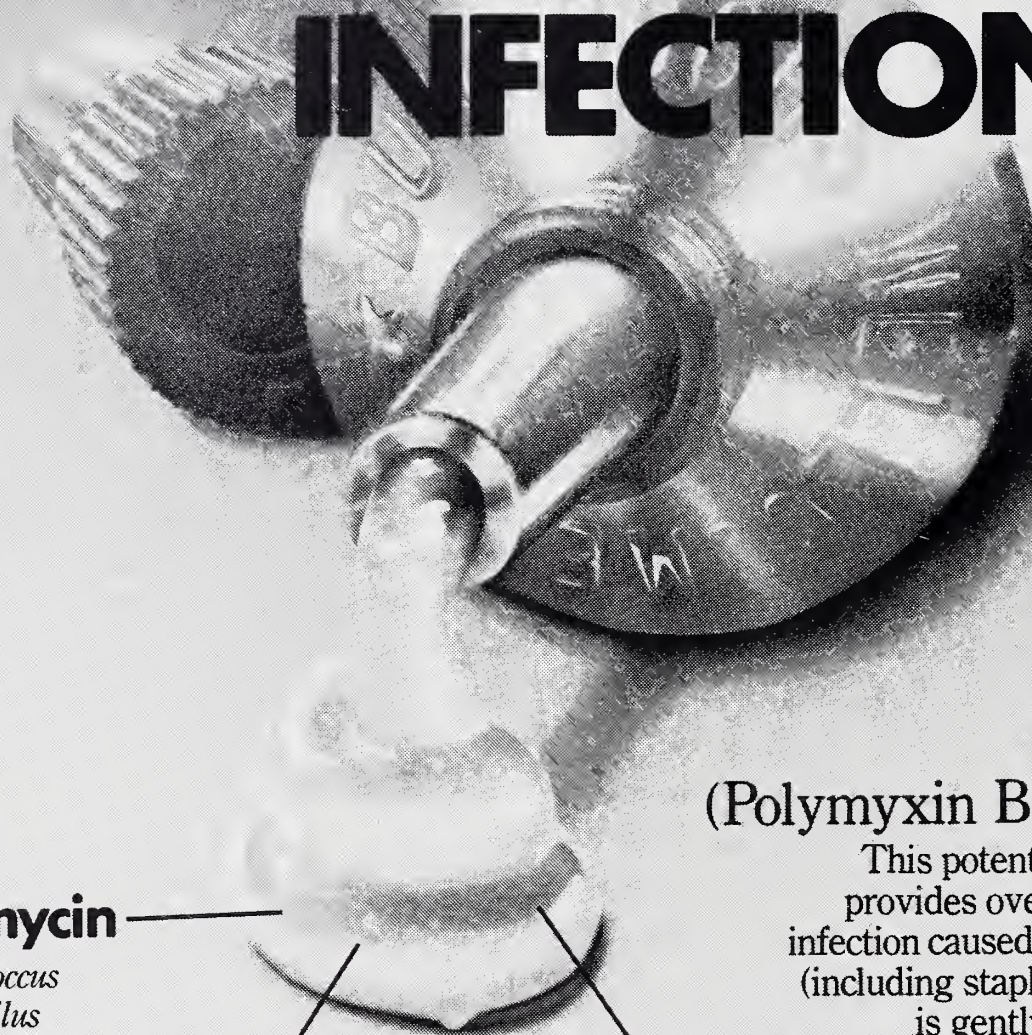
To this observer, it seemed that the most fundamental difficulty was being substantially overlooked in the disputes. Great Britain's National Health Service is vastly underfunded. Facilities are old and crowded. Staff is underpaid at all levels. There seems to be substantial demoralization among staff and patients. There are insufficient funds to carry on most of Great Britain's public programs at an optimal level and the National Health Service does not seem to have a

high rank in the priority system. There seems to be a rather clear intent on the part of the Labor Government to further the system of socialism in Great Britain as it pertains to health care. The Labor Government does not perceive the private practice system as consonant with its basic philosophy and its covenant with the labor unions.

In a speech before the House of Commons on May 6th, Mrs. Castle stated, "Tories and those in the medical profession who oppose the Labor Party's plan should study what is happening in the U. S. as I have recently. I was struck during that visit by the alarm which is mounting there at the escalating cost of their health care under their system of private medical insurance and by the envy and curiosity they feel about our National Health Service."

These are Mrs. Castle's views. Are they accurate? This observer finds little "envy" in the United States for the British health system. He finds much concern in the U. S. for the escalating costs of medical care. Technology and scientific advances have provided vehicles to spend enormous amounts of money in health care. With many diseases the amount that can be usefully spent is limitless. The British experience provides an opportunity to see the result of the body politic not being in partnership with the medical profession in determining the funding of health care. If we in this country are to maintain the high priority that our American public has put on *quality* health care, we must become very involved in matters of cost containment. Certainly, careful attention to holding down those expenses that are unnecessary or marginally necessary is crucial. But beyond that we, in partnership with the public, must begin to consider what are the limits of useful expenditure for health care. It is a difficult but vitally important undertaking. □

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WARNING: Because of the potential hazard of nephrotoxicity and ototoxicity due to neomycin, care should be exercised when using this product in treating extensive burns, trophic ulceration and other extensive conditions where absorption of neomycin is possible. In burns where more than 20 percent of the body surface is

affected, especially if the patient has impaired renal function or is receiving other aminoglycoside antibiotics concurrently, not more than one application a day is recommended.

When using neomycin-containing products to control secondary infection in the chronic dermatoses, it should be borne in mind that the skin is more liable to become sensitized to many substances, including neomycin. The manifestation of sensitization to neomycin is usually a low grade reddening with swelling, dry scaling and itching; it may be manifest simply as failure to heal. During long-term use of neomycin-containing products, periodic examination for such signs is advisable and the patient should be told to discontinue the product if they are observed. These symptoms regress quickly on withdrawing the medication. Neomycin-containing applications should be avoided for that patient thereafter.

PRECAUTIONS: As with other antibacterial preparations, prolonged use may result in overgrowth of nonsusceptible organisms, including fungi. Appropriate measures should be taken if this occurs.

ADVERSE REACTIONS: Neomycin is a not uncommon cutaneous sensitizer. Articles in the current literature indicate an increase in the prevalence of persons allergic to neomycin. Ototoxicity and nephrotoxicity have been reported (see Warning section).

Complete literature available on request from Professional Services Dept. PML.

Editorials

WHO SHOULD TREAT BREAST CANCER?

The three articles on breast cancer in this issue were submitted to the *Journal* independently. They are published as a symposium because each presents a perspective, and because each author stresses the need for multi-disciplinary cooperation. The last paragraph by Doctor O'Brien deserves close reading. While it *does* seem fitting that the patient should have access to multiple viewpoints before a treatment strategy is formulated, it is difficult to envision how the consumer can really "dictate her own treatment" given the complexities of the therapeutic questions involved. Later this year, we hope to publish a guest editorial discussing this question — "Who should treat breast cancer?" — at greater length.

— CSB

STATE OF THE JOURNAL

This issue is for the Convention, and contains various reports and resolutions available at publication deadline. The report for the *Journal* itself will be given at the meeting. At the time of this writing, a financial report is in preparation.

In January, the editor attended the annual conference of the State Medical Journal Advertising Bureau. Around the country, there is a consensus that (1) state medical journals are still worthwhile, but (2) the times ahead may be financially difficult. A salient point which emerged was that advertisers look critically at the extent to which the state journal displays dialogue between its editorial staff and its readership.

Earlier this year, we stated our attempt to stress scientific articles of practical usefulness to physicians. We will also give heavy emphasis to social and economic commentary bearing on the health of South Carolinians. We cannot state too strongly that a major *raison d'être* for the *Journal* is to provide the practicing physician with a forum for his or her observations and opinions. In this light, one notes that the lead article in this issue reflects progress made by a practicing surgeon, and that the guest editorial below reflects the viewpoint of a practicing ophthalmologist.

— CSB

OPEN LETTER TO THE PHYSICIANS OF SOUTH CAROLINA

Presently, there is proposed legislation before the Medical, Military, Public and Municipal Affairs Committee of the House of Representatives (Bill #H 2158) which would redefine the practice of optometry in our state.

This legislation seeks to allow optometry to use drops in the eye — anesthetic agents as well as various types of dilating drops. Optometry claims that this change in the law is necessary in order for them to better "measure the powers of vision." The claim is made that optometrists have the pharmacologic background to use these drugs safely.

There are several key issues to be considered by all physicians in South Carolina:

- 1) Optometrists are non-medical — they are not even paramedical. They are trained by optometrists, not by medical professionals (except an occasional lecture by an M. D.). Their skill is a measuring skill. Their profession is acknowledged and respected by physicians as a non-medical measuring profession.
- 2) Eye medications can cause serious side-effects, both local and systemic. Optometrists are trained neither to recognize nor treat any drug reactions.
- 3) In South Carolina the majority of “primary eye care” in terms of managing problems (trauma, infection, etc.) and making diagnoses is being done by the physicians of the state — general practitioners, family physicians, pediatricians, and internists. To allow optometrists to dilate pupils to make diagnoses is unnecessary and dangerous. The physicians in South Carolina see patients and ascertain the absence of disease in the eye prior to referral in optometry where a measurement of their vision and a determination of corrective lenses is made. Physicians in South Carolina do not refer patients to optometrists for diagnosis or treatment of eye disease.
- 4) On the horizon is the threat of the practice of medicine by non-medical practitioners — chiropractors, audiologists, psycholo-

gists, optometrists. Many similar groups have extensive medical education (physicians assistants, nurse practitioners, pharmacists) yet there is no question that they should NOT be allowed to use medications.

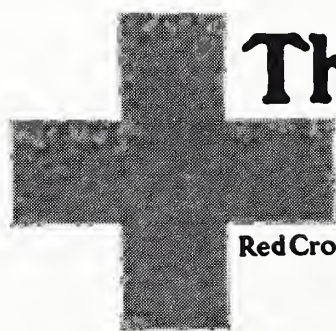
The South Carolina Medical Association has voiced strong opposition to the proposed optometric legislation. This opposition represents support for a basic premise: **THE PRIVILEGES AND RESPONSIBILITIES OF USING MEDICATIONS IN HUMANS COMES THROUGH EDUCATION NOT LEGISLATION.**

Optometry does not have the educational background to safely use drugs in the eye, nor does it have the clinical pharmacological experience to manage the potential complications of drug use, and actually does not have the basic knowledge to diagnose the diseases to which they may become more exposed through dilated pupils.

The South Carolina Society of Ophthalmology respectfully requests the support of all medical doctors in South Carolina to encourage your legislators to vote against the proposed optometric legislation (#H 2158).

It is critical that the people of South Carolina not be exposed to the use of drugs by unprepared non-medical practitioners.

Hunter R. Stokes, M. D., President
S. C. Ophthalmological Society



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President's Page



TO MY FELLOW PHYSICIANS:

GOALS AND ASPIRATIONS

In the March issue of the *Journal*, we listed some of the accomplishments of the SCMA over the past year. We have reason to be proud of our efforts, but this is just a beginning for there is much more to be done.

This report to you is being written on March 4, 1977 to be printed in the *Journal* and read by you shortly before our Annual Meeting at Myrtle Beach. Some of our plans and projects require more time for implementation than the term of my office. Many activities will continue into the Presidency of my successor, Dr. Waitus Tanner, and we leave a legacy of goals and aspirations we hope can be accomplished in the future:

1. Medicare-Medicaid Reimbursement — the Bureau of Health Insurance will probably present a reimbursement mechanism for our consideration about March 15, 1977 and perhaps we can study, recommend changes and even present to the House of Delegates for final ratification.
2. Department of Social Services — continue our recently established negotiations to become involved in the budget and decision-making stage of policy and regulations.
3. Department of Health and Environmental Control — continue our negotiations to define personal health and public health and delineate areas of responsibility so as to cease competition and duplication, and thus reduce the cost of medical care and health care.
4. Professional Liability Legislation — to stabilize this threat to health care in South Carolina.
5. SCMA owned Insurance Agency — establish and become operational.
6. SCMA owned Mutual Liability Insurance Company — continue feasibility study.
7. Disabled Doctors Plan — implement.
8. SCMA structure and organization — study with AMA restructuring.
9. Council of SCMA — continue to study restructuring.
10. Rural Health Delivery Project — continue to implement its goals and objectives.
11. Membership — every S. C. licensed physician a member of SCMA.

These are some of our priority goals at this time. Their achievement will not be easy or quickly accomplished. As your outgoing President, I extend to you my appreciation for your cooperation during the past year and your sympathetic understanding. I urge each SCMA member to stand ready to involve himself in the work of the Association. The future of our Profession is in our hands. Let us guard it well.

J. D. Gilland, M.D.
President

AUXILIARY PRESIDENT'S PAGE



MRS. LINUS W. HEWIT



MRS. NORMAN H. GARDNER

TWO PRESIDENTS TO VISIT SOUTH CAROLINA AUXILIARY CONVENTION

Mrs. Norman H. Gardner, of East Hampton, Connecticut, President of the AMA Auxiliary, will be the guest speaker at the Saturday Auxiliary luncheon at the Myrtle Beach Convention, April 30. Active in all levels of auxiliary work, Mrs. Gardner previously served one term as First Vice President; two terms as Eastern Regional Vice President; and as Director, Constitutional Secretary, Historian, Chairman of the Program Committee, Chairman of the Rural Health Committee, and member of the Communications and Executive Committees. She was Editor of *The Connecticut Quarterly* for three years, President of her county auxiliary in 1959, and President of her state auxiliary in 1962.

Mrs. Gardner is a graduate of Simmons College in Boston. Before her marriage to Dr. Gardner, she taught home economics. She has four married children and nine grandchildren.

Dr. Gardner, who passed away in February, 1976, established his general practice in East Hampton in 1935, after graduation from Tufts Medical School. He had been a Past President of the Connecticut State Medical Society, the Central Middlesex Association, the Middlesex County Medical Association and the Connecticut Academy of Family Practice.

Active in her community, Mrs. Gardner was a Director of the Public Health Nursing Association, Chairman of the TB Christmas Seal Sale for three years, Chairman of the Cancer Drive for two years, and Co-chairman of two United Fund campaigns. She was elected to the School Board for seven years and served as Secretary of the School Building Committee.

Mrs. Linus W. Hewit, of Tampa, Florida, is President of the Woman's Auxiliary to the Southern Medical Association. The wife of a Urologist, Mrs. Hewit is the mother of three children. Active in Auxiliary affairs since 1947, she served as County and State President, and was a member of the Board of Directors of the AMA Auxiliary for five years. She has served on the Southern Board for eight years.

After college, she was on the staff of *The Tampa Morning Tribune* for three and a half years. Currently, Mrs. Hewit serves on the Board of the Blood Bank, the Travelers' Aid Society, the Division of Children's Services, and is Auxiliary Chairman of the Florida Medical Foundation.

CORRECTION: In the February issue of the *Journal*, it was stated that the office of Dr. Moore was an historic landmark. This is incorrect. The Walnut Grove Plantation is a registered historic landmark.

ONE HUNDRED TWENTY-NINTH ANNUAL MEETING SOUTH CAROLINA MEDICAL ASSOCIATION

APRIL 28 - MAY 1, 1977 MYRTLE BEACH HILTON, MYRTLE BEACH, S. C. GENERAL PROGRAM

Thursday, April 28

- 8:00 a.m. Council Breakfast and Meeting — West Ballroom, Suite A
- 12:30 p.m. Council Lunch — West Ballroom, Suite B
- 2:00 p.m. Council Meeting — West Ballroom, Suite A
- 3:00 p.m.-
- 8:00 p.m. SCMA Registration and Exhibits Open

Friday, April 29

- 7:00 a.m. Council Breakfast — West Ballroom, Suite A
- 7:30 a.m. Reference Committee Chairman Breakfast — Parlour V
- 7:30 a.m.-
- 6:30 p.m. SCMA Registration and Exhibits Open
- 9:00 a.m.-
- 1:00 p.m. House of Delegates Meeting — Center Ballroom
- 10:00 a.m. General Membership Meeting — Center Ballroom
- 1:00 p.m. SOCPAC Luncheon — East Ballroom
- 3:00 p.m. Reference Committee Meetings (will be staggered)
- 4:00 p.m. Parlours I-VI and Suites A & B, West Ballroom
- 5:00 p.m.
- 6:30 p.m.-
- 8:00 p.m. Medical College of Georgia Reception for its alumni — Parlours I and II

Saturday, April 30

- 7:30 a.m. Council Breakfast — West Ballroom, Suite C
- 7:30 a.m.-
- 5:00 p.m. SCMA Registration and Exhibits Open
- 9:00 a.m.-
- 1:15 p.m. Scientific Session — Center Ballroom
- 11:00 a.m. State Board of Medical Examiners Interviews — Parlours V and VI
- 1:15 p.m. MUSC ALUMNI LUNCHEON — East Ballroom
- 7:00 p.m. Annual Reception and Banquet — Center Ballroom

Sunday, May 1

- 7:00 a.m. Council Breakfast — Parlours I, II, and III
- 7:30 a.m. Reference Committee Chairmen Breakfast — Parlour IV
- 9:00 a.m. House of Delegates Meeting — Center Ballroom
- 12 NOON Swearing in of new officers, followed by a 10 minute non-denominational service
- 1:00 p.m. S. C. Medical Care Foundation Annual Membership Meeting — Parlours I-IV

ELECTIONS 1977

OFFICERS:	President-Elect *Vice President *Secretary *Treasurer (Nominated by Council)
COUNCILORS:	(Three-year terms, no more than three consecutive terms) District 3: William H. Klauber Elected 1968 *District 6: James S. Garner, Jr. Elected 1975 to fill unexpired term of J. D. Gilland *District 9: Euta M. Colvin Elected 1972 to fill unexpired term of Harold P. Hope
SPEAKER OF THE HOUSE:	(Two-year term, no more than two consecutive terms) *William H. Hunter — Elected 1975
VICE SPEAKER OF THE HOUSE:	(Two-year term, no more than two consecutive terms) *Forde A. McIver — Elected 1975
AMA DELEGATE (SR.)	*John C. Hawk, Jr. — Present term expires
AMA DELEGATE (JR.)	*C. Tucker Weston — Present term expires
MEDIATION COMMITTEE:	(Three-year terms, no more than two consecutive terms) District 3: Ralph P. Parker Elected 1971 District 6: James S. Garner Elected 1971 *District 9: John H. Cathcart, Jr. Elected 1974

NOMINATIONS TO GOVERNOR FOR STATE BOARDS AND AGENCIES:

STATE BOARD OF MEDICAL EXAMINERS:	*First District: A. Richard Johnston term expires *Third District: William P. Turner term expires
RADIATION CONTROL COUNCIL, TECHNICAL ADVISORY COMMISSION:	*George W. Brunson term expires
COUNCIL FOR CONTROL OF METHADONE PROGRAMS FOR NARCOTICS ADDICTS:	*Joe Freed term expires
STATE BOARD OF EXAMINERS, SPEECH PATHOLOGY & AUDIOLOGY (Must be Otolaryngologist):	*James White term expires

* Eligible for Re-Election

REPORTS OF COUNCILORS*

FIRST DISTRICT

During the past year as your Councilor from the First District, I have attended all Council meetings except for the Annual Retreat in October at Hilton Head.

I have attended seven meetings of the Charleston County Medical Society and given a report on Council activities on each occasion. In addition, I have attended and reported at seven meetings of the Coastal Medical Society which is composed of all the counties in the District.

In conjunction with the Coastal Medical Society, I attended a meeting of the Beaufort County Medical Society and made a report at that meeting. Also, I attended two meetings of the Dorchester County Medical Society.

I am pleased to report that the Dorchester County Medical Society has completely reactivated and reorganized, with a total membership at the present time of 25 young physicians, with a prospect of ten more members. They have held two meetings thus far, and have elected new officers. Granville S. Way, M.D., was elected President.

It has been a pleasure to serve as your Councilor from the First District again this past year.

A. Richard Johnson, M.D.
St. George, South Carolina

SECOND DISTRICT

The year 1976 has been a busy and exciting year for your Councilor of the Second District, since this has been my first year of service to you. It has taken me time to learn more about the organization and function of Council and our state association. I am continuing to learn, and I plan to serve you to the best of my ability in the forthcoming year.

The Council continues to have a very heavy workload. I have been able to attend each Council meeting as well as the weekend work retreat at Hilton Head in October, 1976.

I would like very much to see better membership in the South Carolina Medical Association from physicians in the Second District. There are so many important areas of concern such as liability insurance, legislative matters, etc. that affect all of us very much. Our state association would have more unity and be more effective if our membership were better. I would encourage everyone to work on the "homefront" to encourage his fellow physician to become a member. There are many jobs and committee assignments that need to be filled by people who are willing to do the work. Dr. Strother Pope of the Second District continues to work very hard for us in the legislature, and we all owe a great deal of appreciation to him.

The professional development of the Second District has continued to make progress. The Family Practice Center of Richland Memorial Hospital has opened, and there has been further development in the Family Practice Residency Program. Lexington County Hospital has just opened its addition which has increased its bed capacity as well as Ancillary Services.

The Medical School of the University of South Carolina has continued to grow and expand its faculty. The school has received accreditation and plans to admit its first class in the fall of 1977.

I know of no significant controversial matters during the past year that need to be reported from the Second District.

James H. Herlong, M.D.
Columbia, South Carolina

THIRD DISTRICT

During 1976, the needs of organized medicine have been served satisfactorily by the relatively recently reactivated Third District Medical Society. Additionally, there continues improvement in the organization of the various County Societies. Two counties within the district have an insufficient number of physicians to permit meaningful organization. Combination societies between these counties are under discussion.

* Available at publication deadline

The professional development of the Third District is making progress through initiation of new physical facilities and incoming appropriate professional talent. Recent completion of a new hospital facility in the Newberry area continues to contribute to progress in medical care in that region. A new Physicians Office Complex near the Bailey Memorial Hospital in Clinton has upgraded the medical potential in that area. The Greenwood area continues to make progress

with an ongoing Genetic Counselling Center, Pediatric Intensive Care facilities, Modernization of obstetrical monitoring and construction of a New Family Practice Residency, as well as additional educational facilities and development of an AHEC at the Self Memorial Hospital.

No significant controversial matters have arisen in the Third District during the past year.

William A. Klauber, M.D.
Greenwood, South Carolina

RESOLUTIONS TO BE PRESENTED AND VOTED ON AT THE ANNUAL MEETING

Submitted by: Anderson County Medical Society
Subject: AMA CPT Coding System

Submitted by: Constitution and By-Lays Committee
Subject: Multiple Office Holding by Elected Officials

WHEREAS, the SOUTH CAROLINA MEDICAL ASSOCIATION has gone on record as endorsing the use of the standard AMA insurance claim form to be used by all third party payers in this state; and

WHEREAS, the SOUTH CAROLINA MEDICAL ASSOCIATION has gone on record as endorsing the use of AMA CPT as the standard coding system to be used by all third party payers in this state;

NOW, THEREFORE, BE IT RESOLVED, that the ANDERSON COUNTY MEDICAL SOCIETY endorse and support these previous actions of the SOUTH CAROLINA MEDICAL ASSOCIATION and lend its support to the early adoption of this standard claim form and coding system for all third party payers of this state.

WHEREAS, the South Carolina Medical Association has many talented and motivated members; and

WHEREAS, it is only fair that this vast source of human ingenuity and judgment be realized; and

WHEREAS, those members of the South Carolina Medical Association should be given an opportunity to serve;

NOW THEREFORE, BE IT RESOLVED, that multiple office holding by elected officers cease to be practiced in the South Carolina Medical Association and its subsidiaries; and

BE IT FURTHER RESOLVED that members of Council and the House of Delegates be responsible for implementing this Resolution.

COMMITTEE REPORTS

RURAL HEALTH DELIVERY COMMITTEE

The Rural Health Delivery Project, co-sponsored by the South Carolina Medical Association and the South Carolina Hospital Association, has just completed its first year of operation. Representing the private sector of the health care industry in South Carolina, its goal has been to establish a comprehensive program which could effectively impact on the health care problems of the rural and medically underserved areas of the state on a long-term basis.

In order to accomplish this goal, staff developed and implemented a Physician Referral, Recruitment and Placement Program for all areas of South Carolina. Now established as the "physician resource," the R.H.D.P. serves as a centralized source of physician information for physicians, hospitals, and committees seeking additional physician manpower for their area. At least five known placements are known to have taken place to date.

The R.H.D.P. now maintains an extensive file of approximately 140 physicians seeking practice opportunities in South Carolina. About 95% of those currently listed are from out-of-state. Of the primary care specialties, there are 25 listings for Internal Medicine, 14 OB/GYN, 11 Pediatrics, and 13 Family Practice and General Practice. With the increasing migration to the "Sun-Belt" states and a new effort to promote medical practice in some of the national medical journals, it is anticipated that the listings of physicians interested in locating in South Carolina will continue to grow.

In addition to the out-of-state recruitment efforts, the R.H.D.P. is actively involved in the recruitment and retention of medical students and residents being trained in South Carolina. Through a cooperative effort with the Area Health Education Centers and the Statewide Family Practice Residency System, the R.H.D.P. is helping to sponsor a series of dinners with the residents and their wives. These dinners are to be followed up by personal interviews by A.H.E.C. and R.H.D.P. staff to address each resident's desires and needs for even-

tual location on an individual basis. Dinners have already been held in Charleston and Greenville, and will be held in other training centers in the near future. It is hoped that this concentrated effort by organized medicine and the medical education centers will have a very positive impact on the retention of this most vital physician resource.

As for available practice opportunities, the R.H.D.P. has registered over 170 specialty opportunities in 90 different communities throughout the state. The vast majority of these opportunities are for primary medical care specialties. There are currently 54 openings for Family Practice physicians, 24 for General Practice, 25 for Internal Medicine, and 15 and 14 opportunities for OB/GYN and Pediatrics respectively. Within the next two months, every physician and hospital in the state will again be contacted to make sure the available practice opportunities are listed in the referral and placement information which is distributed on a monthly basis.

Finally, the R.H.D.P. has been actively involved in providing technical assistance to communities requiring help in organizing their recruitment efforts and in identifying available financial resources. Staff has just helped the residents of Calhoun Falls, a community without a physician for over ten years, complete a Rural Health Initiative grant application and is continuing to help with construction and physician recruitment activities. More efforts of this kind are anticipated in the near future. In addition, educational seminars, with participation of community leaders and primary care residents, will be sponsored this year to help all participants identify the needs, concerns, and expectations encountered in the recruitment process. It is hoped that, by providing the necessary technical assistance and by bringing communities and residents together in a meaningful exchange of information, the communities/areas of greatest need will be able to more effectively obtain the all-important physician manpower.

Although addressing a most complex and dif-

ficult problem, the Rural Health Delivery Project can, through the cooperative approach initiated with other organizations, make a major contribution towards the adequate provision and distribution of medical resources in South Carolina.

Harrison L. Peeples, M.D., Chairman
Rural Health Delivery Project
Steering Committee
Donald G. Kilgore, M.D., Chairman
Rural Health Delivery Committee

MENTAL HEALTH COMMITTEE MAJORITY REPORT

The Mental Health Committee of the South Carolina Medical Association met on November 4, 1976 and February 10, 1977 to study the 1977 South Carolina State Department of Mental Health State Plan. Donald Freeman, M.D., member of this Committee, is a representative on the Advisory Council that prepares this Plan.

In the near future, physicians will be receiving a questionnaire in regard to their participation in the care of patients who are mentally ill and we strongly urge physicians to respond as quickly as possible in order to supply information for future plans.

William S. Hall, M.D., State Commissioner of Mental Health, brought before this Committee the differentiation between the State Health Plan and the State Mental Health Plan. Public Law 93-641 gives the Department of Health and Environmental Control the power to write the State Health Plan. The State Mental Health Plan, when completed, will be submitted to DHEC and included in the global State Health Plan, with DHEC having authority to make changes where it deems necessary and reasonable. Steps are being initiated to try to remove this power from DHEC and place the authority under the Governor's office.

It was the general consensus of this Committee to endorse the State Mental Health Plan, in principle, along with the Resolution of the State Advisory Plan as passed and submitted on November 9, 1976, to wit: "We recommend that the Department of Mental Health develop, as feasible, information about the non-state mental

health providers of mental health services in the regions and that this information be developed in a way that makes it possible to assess the total mental health services available in the catchment areas."

Members submitting this report: Jim Berry, M.D., Karl V. Doskocil, M.D., C. J. Edens, M.D., Joe E. Freed, M.D., Donald Freeman, M.D., William S. Hall, M.D., William King, M.D., Ramsey Mellette, M.D., S. R. Shannon, M.D. and J. P. Taylor, M.D.

MENTAL HEALTH COMMITTEE MINORITY REPORT

The South Carolina Department of Mental Health is to be commended for its preparation of the fiscal plan year 1977 which compiles much data relating to the State Mental Health services in South Carolina and outlines its plans for the future. The part of the future plans which most concerns me is the proposed "Village System" which is an attempt to decentralize the inpatient care services of the State Department of Mental Health. It does not, however, place the care of the mentally ill in the community where it belongs. The village system envisions four villages which are really psychiatric hospitals; one each in the Midland section of the state, the Piedmont, the Pee Dee and the Charleston-Beaufort area. All of the beds in the village system are to be acute care beds. Village A, which is to serve the Midlands, is located near Crafts Farrow Hospital in Columbia and should be in operation in the near future. It is a 304 bed facility with an estimated cost of \$11,650,000. Village B, to be located near Anderson, is currently in the architectural planning stage and is expected to have 300 beds and cost approximately \$13,000,000. Village C is planned to serve the Pee Dee area and have approximately 150 beds and cost approximately \$7,000,000. Village D would be of comparable size and cost. Village A would serve 33% of the state's population, Village B 35%, Village C 15% and Village D 17% of the population. The total cost of construction of the villages would be approximately \$38,650,000.

The operational plan of the village system consists of the villages being intermediate between

the community mental Health Centers and the central South Carolina State Hospital. If a private practitioner had a patient whom he considered needed hospital care in the state system, the patient would be referred to the local community Mental Health Center where the patient would either be treated or sent to the regional village. If the patient were sent to the village, he could be treated there for up to 3 to 6 months, but if he required longer care, he would be transferred to the State Hospital. If he recovered within 3 to 6 months, he would be referred back to the local Mental Health Center for follow up care. The plan as outlined is a closed plan which takes into consideration neither the psychiatric units in the local general hospitals nor the private practitioner. It is anticipated that the cost of operating the village is likely to be the same cost as operating beds in the local general hospitals as they will all be acute care beds.

One of the biggest advances in mental health care in South Carolina within the last two decades has been the development and expansion of the psychiatric units in the general hospitals throughout the state. This has made inpatient psychiatric care available to the citizens within their own community. The availability of expanded private health insurance, Medicare and Medicaid made it financially feasible for most of the citizens. If a national health insurance program is passed which includes coverage for mental illness, other citizens will have the alternative of seeking private mental health care as opposed to state mental health care.

To further define the impact that the village system will have in a region, I would like to examine more closely region B which includes 14 counties in western South Carolina. In 1974-75, there were 978 admissions to the South Carolina State Hospital and 250 admissions to Crafts Farrow State Hospital for a total of 1,228 admissions to the South Carolina State Hospitals. If these 1,228 patients stayed six weeks, approximately 136 beds would be required for their care. There currently exists in region B the following designated psychiatric beds: Anderson Memorial - 30, Greenville General - 50, Spartanburg General - 37, and Self Memorial - 14, for a total of 131 psychiatric beds. The proposed Village B will construct 300 acute care psychiatric beds in this region for an estimated cost of \$13,000,000 or \$43,000 per bed. If these 300 beds are going to be

filled with acute care psychiatric patients, most likely some of them will be patients who are currently being cared for in the local community hospitals and the net effect of the village system would be to take mental health care out of the community rather than providing it locally.

An alternative to the village system would be to use the money to modernize and expand the psychiatric facilities in the local general hospitals and to build psychiatric units in general hospitals which do not have them, but serve a large enough population to justify the construction of a psychiatric unit. This would aid in attracting psychiatrists to the smaller communities in our state and truly upgrade the mental health care in these communities. Additions to the existing psychiatric units at the general hospitals could be made for approximately \$30,000 per bed as opposed to \$43,000 per bed in the village system.

The average daily census of our South Carolina State Hospitals has been decreasing since 1964 and the number of admissions to the South Carolina State Hospitals has been decreasing since 1972.

In summary, the proposed Village System which is really a system of four psychiatric hospitals with an estimated 900 beds are to be built in the state with an estimated cost of \$38,650,000. These hospitals would be intermediate between a community mental health center and the South Carolina State Hospital, but would be acute care beds with a much higher operating cost than the South Carolina State Hospital and comparable with the local general hospital. These state supported hospitals would provide short term psychiatric care (up to 3 to 6 months) and would duplicate many of the services of the local general hospitals with a psychiatric unit. A much less expensive approach which would keep the care of the psychiatric patient in the community would be to use some of the money proposed for the village system to expand and upgrade the psychiatric units in the local general hospitals and to build psychiatric units in the smaller general hospitals in areas which do not have inpatient psychiatric facilities. Some of the other money could be used to upgrade facilities in the central State Hospitals. Past experience with highly specialized, free standing hospitals such as those for the treatment of polio and tuberculosis has shown them to be of only brief usefulness. The Veterans Administration now only builds

hospitals in cooperation with medical centers. Obtaining and retaining competent staff may be an insurmountable problem for the village system.

The South Carolina Medical Association should not endorse the village system.

R. Bruce Ford, M.D., Chairman

HISTORICAL MEDICINE COMMITTEE

The Committee on Historical Medicine has had no active projects during the year. It would like to recommend again that the Association promote an effort to establish a professorship of the History of the Medical Sciences at the Medical University of South Carolina, where such a source would be most valuable in teaching the importance of a knowledge of the relation of our present day medicine to that of the past.

During the year one member of the Committee has published three medical historical papers concerning South Carolina, one in the *Journal of the American Medical Association*, one in the *Journal of the History of Medicine and Allied Sciences*, and one in the *American Journal of Diseases of Children*.

J.I. Waring, M.D., Chairman

Leon Banov, M.D.

O. B. Mayer, M.D.

MEMORIAL COMMITTEE

Some of our colleagues who have been friends to many of us and to thousands of patients have answered their last call since we met together last May. I am sure that we all agree that it is appropriate that we pause at this time to give thanks to Almighty God for the lives of those of our departed friends and colleagues: Dr. William R. Wallace, Chester; Dr. Elizabeth W. Ayer, Charleston; Dr. Bernyrd C. McLawhorn, Greenville; Dr. T. A. Campbell, Sr., Blacksburg; Dr. A. M. Rabon, Greenville; H. Schreiber, Camden; Dr. Thomas Eugene Hair, Columbia; Dr. Edgar E. Strong, III, Columbia; Dr. Charles I. Goodwin, Holly Hill; Dr. William James Henry of Chester; Dr. Walter R. Mead of Florence; and Dr. Dreyfus O. Winter, Sumter.

Harold P. Hope, M.D.

Chairman

INSURANCE COMMITTEE

The Insurance Committee had one meeting during the year and another study by mailing information and vote by mail.

The Committee met at the Mid-winter meeting of the House of Delegates. The main area of discussion was the need of the Association to set up a comprehensive Insurance Program similar to that of the SMA. Council was requested to allocate funds for such a study but this was not feasible. Subsequently it was decided to use a Consulting Insurance firm of Atlanta to study this problem with the study being made of the Malpractice Insurance problem. As I understand it the SCMA is now at the stage of setting up an Insurance Agency which will conduct this study and work out a program as recommended. This takes time.

In January the Committee studied and voted by mail to recommend the Association continue Blue Cross-Blue Shield. It was recommended, however, Blue Cross-Blue Shield be asked to make quarterly reports as to usage by area and type of disease so as to see if the premiums could be reduced. It was also suggested an attempt be made to get a larger percent participation in this program by members of the Association.

In summary, the Committee recommends efforts be continued to set up a comprehensive Insurance program for members of the SCMA. It is hoped this can be effected by setting up an Insurance Agency but, if not, funds should be allocated for another consultant to try and work out such a program.

James L. Wells, M.D.
Chairman

ALCOHOL AND DRUG ABUSE COMMITTEE

I have met twice with the Womans Task Force Committee to plan a spring meeting directing attention to Drug and Alcohol Abuse among women.

Also I attended an American Medical Association Seminar on the Disabled Doctor in Atlanta, February 4th, 5th, and 6th. This is in conjunction with the Ad Hoc Committee on the Disabled Doctors Program in South Carolina.

S. Hunter Rentz, M.D.P.A.
Chairman

AD HOC COMMITTEE ON RELATIONSHIPS WITH THE DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

The Committee, recently appointed, has met four times. As SCMA's liaison to the Department of Health and Environmental Control (DHEC), the Committee is attempting to establish a continuous medium for communication between our organizations and to develop a working relationship to enhance service to the public.

The committee has been studying the delivery of health services in the state and considering the future roles of private medicine and public health and their interaction. Much of the Committee's discussion has centered around the Private Pay System and programs such as EPSDT, Crippled Children, Family Planning, Visiting Nurse Programs, Physician Placement Program, Health Care Advisory Committee to DHEC, DHEC Drug Dispensing and other common interest areas.

At its most recent meeting, the Committee met with members of the DHEC Board, the Commissioner of DHEC and representatives of his administrative staff to review some of the above mentioned topics and to discuss where private medicine ends and public health begins. As a result of that meeting, Mr. Lachlan Hyatt, Chairman of the DHEC Board, proposed establishment of a liaison committee comprised of 3 members from each of the parties to work on a closer basis with specific problem areas. Another result of that meeting was the agreement by both groups to define public health services as compared to private health services. SCMA presented a possible definition and DHEC agreed to develop one. The two will be reviewed and discussed further at later meetings.

A recent newspaper article appearing in the State Paper following the most recent meeting, outlined DHEC's plans to improve communications with the private sector, touches on such controversies as drug dispensation, laboratory work controversies, private pay programs competing with private physicians and generally poor communication channels. Dr. William C. Moore, Jr., a DHEC Board member and a dentist, was quoted as saying, "Any problems we now have with private providers could have been avoided by giving them timely information about what we're doing."

Meetings of this nature have served to close existing communication gaps, as well as to improve health care delivery in South Carolina.

Members of the Ad Hoc Committee on Relationships with DHEC are:

Harrison Peeples, M.D., Chr., Estill
Joseph Flowers, M.D., Walterboro
Forde McIver, M.D. Charleston
William (Ted) Young, M.D., Sumter
Roy Howell, M.D., Bennettsville
E.M. Lunceford, M.D., Columbia
James Bell, M.D., Sumter
Claude (Bill) Delia, M.D., Conway
J.D. Gilland, M.D., Pres. SCMA,
(ex officio member)

CONSTITUTION AND BY-LAWS

The SCMA Committee on Constitution and By-Laws held a meeting recently to reconsider its recommendations submitted to the House of Delegates in November, along with the recommendations of the Reference Committee on Constitution and By-Laws. In addition, the Committee considered several matters that had since been referred for study and possible action.

The House, last May, approved in concept a recommendation that the President of the State Board of Medical Examiners be made an ex-officio member of the SCMA Council. To accomplish this, our committee recommends that Article VI (Council) be changed to add after "AMA Alternate Delegate," the wording "and the President of the State Board of Medical Examiners, provided he is a member of the South Carolina Medical Association."

The Long Range Planning Committee has recommended that the terms of Council not exceed two years with re-election not more than two times, such that the total term could not exceed six years. The elections should be staggered so that not more than one-half of Council could be elected yearly. To effect this change, our committee recommends that Article IX, Section 5 be changed to read: "Councilors shall be elected for a term of two years, but no Councilor shall serve for more than three consecutive terms, and the elections should be staggered so that members of Council be elected yearly, with Councilors from odd-numbered Districts be elected in odd-numbered years, and Councilors from even-numbered Districts be elected in even-numbered years."

Last May the House approved a recommendation from the Reference Committee on Council and Officers that the Ad Hoc Long Range Planning Committee be made a permanent standing committee of the SCMA. Our committee recommends, therefore, that the Long Range Planning Committee be listed in the By-Laws under Chapter VIII, Section 4, and that Council be asked to define the duties of this committee for inclusion in the By-Laws.

Also last May, Council adopted a recommendation that the Ad Hoc Committee to the State Board of Medical Examiners be made a Special Committee and asked the Constitution and By-Laws Committee to consider whether or not it should be made a permanent standing committee of the SCMA. Our committee so recommends, and it should be listed in the By-Laws under Chapter VIII, Section 4, and Council be asked to define the duties of this committee for inclusion in the By-Laws.

This committee received a request from the President of the S. C. OB/GYN Society requesting the Committee on Maternal Health be changed to the Committee on Perinatal and Maternal Health. We realize that the Committee on Maternal Health has already been assigned the duties of studying perinatal deaths, and for this reason recommend that the name be changed to the Committee on Perinatal and Maternal Health and the By-Laws be changed accordingly to read under Chapter VIII, Section 14: "Committee on Perinatal and Maternal Health: This committee shall consist of the Director of the Maternal and Child Health Division of the S. C. Department of Health and Environmental Control, provided he is a member of the Association; one specialist in obstetrics or obstetrics/gynecology from each of the Medical Districts to be recommended by the S. C. Obstetrical and Gynecological Association; one specialist in family practice from each Medical District to be nominated by the South Carolina Academy of Family practice; and one pediatrician from each of the Medical Districts to be recommended by the S. C. Pediatric Society. The Chairman shall be one of the specialists in obstetrics or obstetrics/gynecology." The Constitution and By-Laws committee also considered the suggestion of combining the Perinatal and Maternal Health Committee with the Committee on Infant and Child Health, but decided to take no action at this time since we have not heard from

the Chairmen of these Committees who were written for suggestions, or from the Chairman of Council.

This committee was asked to consider the possibility of eliminating the prohibition in the By-Laws against campaigning for offices of the Association. Our committee recommends that this be done, and to accomplish this, we would delete Section 5 of Chapter V of the By-Laws which reads: "Any person known to have solicited votes or sought any office within the gift of the Association shall be ineligible for any office for two years."

The House of Delegates, in November, recommended that the duties of the SCMA Peer Review Committee be assumed by the Blue Cross-Blue Shield Peer Review Committee, and that the BC/BS Peer Review Committee name be changed to reflect the additional duties. We therefore, recommend that Chapter VIII, Section 21 of the By-Laws (Peer Review Committee) be deleted and the following substituted therefor: "Chapter VIII, Section 21. SCMA Insurance Peer Review Committee. This committee shall consider all disputed claims referred to it by insurance companies, shall consider guidelines, policies and procedures submitted for recommendations, and shall review patterns of practice referred for study and recommendations. The committee shall be composed of 12 members of the South Carolina Medical Association, appointed by the President with the approval of Council. Council shall determine from each nominee his willingness to serve prior to his appointment. Term of office shall be three years, and no member may serve more than two consecutive full (3 years each) terms. The terms of the members shall be staggered so that four will be elected each year. Any vacancy on the committee shall be filled by an appointee of the President, with the approval of Council.

This committee considered the fact that because the Constitution so reads, the Amendments to the Constitution and By-Laws can be acted on finally at the "Annual Meeting" in the Spring. This causes a delay sometimes of a year and a half before final action can be taken once a change is proposed. This committee feels that the Constitution and By-Laws should be changed so that final action could be taken at either the Mid-Winter or the Annual Meeting of the House of Delegates.

To effect this change, therefore, our committee recommends that Article XIII (Amendments) of the Constitution be changed to read: "The House of Delegates may amend any article of this Constitution by a two-thirds vote of the Delegates present at *any* meeting, provided that such amendment shall have been presented eleven month's prior in an open meeting of the House of Delegates, and that it shall have been sent officially to each component county society at least two months before the meeting at which final action is to be taken." Additionally, we recommend a change in the By-Laws, Chapter XIII (Amendments) to read as follows: "These By-Laws may be amended at *any* meeting of the House of Delegates by a two-thirds vote of the delegates present." Due to the urgency of this situation, we recommend that the Constitutional change in Article XIII be implemented at the April 28 - May 1, 1977 meeting rather than lie on the table for a year. This committee was asked to define "Annual Meeting" or "Annual Session" and give some study as to the proper definition or intent in the Constitution and By-Laws of the word "Annual." Perusal of dictionaries, including Webster's unabridged, indicates the word "annual" means "yearly," and for all practical purposes, the words "meeting" and "session" mean the same.

The committee notes that an inconsistency exists in Chapter VII (Council) Section 6 of the By-Laws which is not in keeping with By-Laws change which took place last May regarding the ascendancy of the President-Elect to the Presidency. This committee recommends, therefore, that Chapter VII, Section 6, Sentence 3 be changed to read as follows: "In the event that the President and President-Elect both die, or resign, or are removed from office, the Chairman of Council shall assume the Presidency until new officers are duly elected and installed at the next meeting of the House of Delegates."

The Committee considered a proposed change with regard to the makeup of the House of Delegates as it pertains to *all* past presidents of the Association, as the Constitution now reads. We recommend that Article V, Section 1, Item (4) be changed to read: "the immediate two past presidents of the Association whose legal residence is in South Carolina."

The matter of the specialty societies having a voting delegate to the SCMA House of Delegates was debated, and it was the opinion of the mem-

bers of the Constitution and By-Laws Committee that we are not the ones to decide whether or not each specialty society will have a delegate. We shall, however, recommend appropriate changes in the Constitution and By-Laws when the Constitution and By-Laws Committee has been specifically instructed by members of Council.

The committee was asked to consider an appropriate nominating process for election of the President-Elect, as well as the qualifications for the office. After considerable discussion, it was agreed to recommend in ARTICLE IX (Officers), Section 2 (President-Elect) the addition of a subsection (b) to read as follows: "Qualifications for president-elect will be determined as follows: He or she must be nominated by his or her component medical society by letter to Council at least two months prior to the SCMA House of Delegates meeting. In addition, one must have participated in the SCMA seven (7) out of the last ten (10) years in one or more of the following capacities: (a) as a delegate to the SCMA House of Delegates, (b) or as an elected official, (c) or as a member of Council, (d) or as Chairman of a Standing or Special Committee."

The Committee on Constitution and By-Laws appreciates the consideration of the Reference Committee on Constitution and By-Laws and the entire House of Delegates regarding the above recommendations.

John C. Beard, Jr., M.D.
Chairman

EMERGENCY MEDICAL SERVICES COMMITTEE

There has been no activity of the Committee on Emergency Medical Services of the South Carolina Medical Association during the past year. A great deal of the function of this committee has been taken over by the South Carolina Department of Health and Environmental Control.

Dr. Richard S. Wilson of Spartanburg did resign as Committee Chairman, and was replaced by Dr. Henry F. Frierson of Orangeburg, South Carolina.

Henry F. Frierson, M.D.
Chairman

(Continued on page 186)

SOUTH CAROLINA MEDICAL CARE FOUNDATION ANNUAL REPORT TO THE MEMBERSHIP

South Carolina Medical Care Foundation has experienced significant growth since I reported to you at the annual meeting in 1976.

Current physician membership in the Foundation is in excess of 2,200. The Foundation employs on a full and part-time basis over fifty-five (55) people and the operating budget is in excess of \$1,500,000. The Foundation currently holds or is negotiating contracts with the Department of Health, Education and Welfare (DHEW), the South Carolina Budget and Control Board (BCB), The South Carolina Department of Social Services (DSS) and South Carolina Blue Cross/Blue Shield (BC/BS). The DHEW contract is for the operation of the PSRO program in both the acute and long term care settings. Currently all seventy-two (72) acute care hospitals in the state are under PSRO review and 110 long term care facilities will be under review by the end of July, 1977. The Foundation is also working with the HEW on some advance methodologies to test their applicability in the PSRO program. The most notable of these projects is the joint venture with Yale University to test the utility of an advance computer system for data reporting and analysis.

The Budget and Control Board contract is a sub-contractual arrangement for development of the long term care patient data set. The main contract is between the National Center for Health Statistics and the Budget and Control Board with the Foundation and the South Carolina Health Care Association serving as sub-contractors.

The DSS contract is for the purpose of fulfilling the medical review and independent professional review functions that DSS previously performed internally. An in-depth annual review is conducted in each long term care facility by a team consisting of a physician, registered nurse

and social service worker. The purpose of these evaluations is to make an overall evaluation of the patient care being rendered.

The BC/BS contract is a prototype program operating in three hospitals to test the applicability of PSRO review for privately insured patients. This project is for six months duration and upon completion an evaluation will be made by both the Foundation and Blue Cross/Blue Shield to determine whether or not the program should be expanded.

The Foundation staff has provided a significant amount of technical assistance to hospitals, physicians and a wide variety of state agencies and organizations. I believe the physicians of South Carolina can point out with pride the fact that they conceived and developed an outstanding resource in the state of South Carolina. This effort on the part of the medical profession demonstrates their commitment to providing the citizens of South Carolina the highest quality of medical care available anywhere today.

It is important to point out that despite all the controversy that surrounded the Foundation and the PSRO program, there has been very little in the way of complaints or objections to the way the program is being operated. I sincerely believe that the physicians of South Carolina recognize that they as individuals are the South Carolina Medical Care Foundation and that any action that is taken is done so with the best interest of the profession as the utmost consideration.

On behalf of the Foundation Board of Directors and the Administrative Staff, I would like to express our sincere appreciation for your cooperation and support over the past year.

Respectfully submitted by,
Kenneth N. Owens, M.D.
President
S. C. Medical Care Foundation

SCIENTIFIC PROGRAM

CENTER BALLROOM

MYRTLE BEACH HILTON, MYRTLE BEACH, SOUTH CAROLINA

APRIL 30, 1977

9:00 a.m.-	New Developments in Antibiotic	W. Edmund Farrar, M.D.
9:20 a.m.	Therapy	
9:20 a.m.-	Progress in the Diagnosis and	E. Carwile LeRoy, M.D.
9:40 a.m.	Management of Rheumatoid Arthritis	
9:40 a.m.-	Progress in the Management of	John A. Colwell, M.D., Ph.D.
10:00 a.m.	Diabetes	
10:00 a.m.-	New Concepts in Surgical	C. T. Fitts, M.D.
10:20 a.m.	Care	
10:20 a.m.-	Advances in Laboratory	Armand Glassman, M.D.
10:40 a.m.	Medicine	
10:40 a.m.-	New Concepts in the Treatment	John C. Mithoefer, M.D.
11:00 a.m.	of Hypoxia	
11:00 a.m.-	Coffee Break	
11:20 a.m.		
11:20 a.m.-	Endoscopy in Diagnosis and	Clarence W. Legerton, M.D.
11:40 a.m.	Treatment	
11:40 a.m.-	New Development in the Treatment	Thomas Gaffney, M.D.
12:00 Noon	of Hypertension	
12:00 Noon-	New Thoughts about Old Drugs	Harry Margolius, M.D., Ph.D.
12:20 p.m.		
12:20 p.m.-	<i>Symposium</i> — The Management of	P. C. Gazes, M.D.
1:15 p.m.	Myocardial Infarction in the	
	Community Hospital	

SPEAKERS

W. EDMUND FARRAR, JR., M.D.

Dr. Farrar received his M.D. degree from the Medical College of Georgia and did postgraduate training in Internal Medicine and Infectious Diseases there and at Emory University School of Medicine. He spent three years doing research in infectious diseases at Walter Reed Army Institute of Research and then returned to Emory University as a faculty member in the Department of Medicine. He came to the Medical University of South Carolina five years ago, and is currently a Professor of Medicine and Microbiology, and Director of the Infectious Diseases and

Immunology Division in the Department of Medicine.

EDWARD CARWILE LEROY, M.D.

Dr. Leroy was born in Elizabeth City, North Carolina. He received his education at Fork Union Military Academy, Virginia, and Wake Forest College in North Carolina. He is a 1967 Diplomate of the American Board of Internal Medicine. Dr. Leroy is currently Professor of Medicine and Director, Division of Rheumatology and Immunology in the Department of Medicine at MUSC.

JOHN A. COLWELL, M.D., Ph.D.

Dr. Colwell had his undergraduate training at Princeton University and received his M.D. Degree at Northwestern University Medical School in 1954. He interned at University Hospital, Cleveland, Ohio, and took residency and fellowship training in Endocrinology and Metabolism at Northwestern University Medical School. In 1971, he became Professor of Medicine and Associate Chief of Staff for Research at MUSC and the Charleston V.A. Hospital. He is currently Director, Endocrinology, Metabolism, Nutrition Division at MUSC.

CHARLES T. FITTS, M.D.

Dr. Fitts is a Professor of Surgery and Director of the Dialysis and Transplant Unit at MUSC. He received his B.A. from Princeton University and M.D. from the University of Pennsylvania. He completed a rotating internship at the University of Pennsylvania, and his surgical residency at the University of Mississippi. Dr. Fitts is certified by the American Board of Surgery and participates in various organizations, programs and lectures.

ARMAND B. GLASSMAN, M.D.

Dr. Glassman is a graduate of Georgetown University School of Medicine. His postgraduate training includes internship at Georgetown University Hospital and residency in Anatomic Pathology and Clinical Pathology at Yale University School of Medicine. He is presently Chairman of the Department of Laboratory Medicine at the Medical University of South Carolina.

JOHN C. MITHOEFER, M.D.

Dr. Mithoefer is Professor of Medicine and Director of the Pulmonary Division at the Medical University of South Carolina. He came to Charleston in 1972 from the Dartmouth Medical School where he was Professor of Medicine and Director of the Cardiopulmonary Division. Dr. Mithoefer is a graduate of the Harvard Medical School.

CLARENCE W. LEGERTON, M.D.

Dr. Legerton is Professor of Medicine and Director, Gastroenterology Division at the Medical University of South Carolina. A graduate of

Davidson College and the Medical University of South Carolina, he served his internship and residency at University Hospital in Baltimore, followed by a fellowship in gastroenterology at Duke Hospital. He is a Diplomate of the American Board of Internal Medicine and the American Board of Gastroenterology, and has authored a number of scientific papers and medical textbook sections. Presently, he is also serving as Assistant to the President of MUSC.

THOMAS E. GAFFNEY, M.D.

Dr. Gaffney was born in East St. Louis, Illinois. He received his M.D. Degree from the University of Cincinnati in 1957, and interned at the Harvard Medical Service, Boston City Hospital in 1958 and 1959. He was Assistant Resident at the Massachusetts General Hospital in 1959 and 1960. He is presently Professor and Chairman, Department of Pharmacology at the Medical University of South Carolina, and concurrently Professor of Medicine at MUSC.

HARRY S. MARGOLIUS, M.D., Ph.D.

Dr. Margolius was born in Albany, New York. He received a B.S. Degree from the Union University College of Pharmacy in 1959; a Ph.D. in Pharmacology from Union University, Albany Medical College in 1963, and M.D. Degree from the University of Cincinnati College of Medicine in 1968. He served his internship and Assistant Residency in Medicine at Boston City Hospital. He is presently Associate Professor of Pharmacology and Assistant Professor of Medicine at MUSC.

PETER C. GAZES, M.D.

Dr. Gazes was born in St. Matthews, South Carolina. He received his B.S. Degree from the College of Charleston, and his M.D. Degree from the Medical University of South Carolina. He is the author of many published articles and chapters in textbooks, and is the author of a textbook entitled *Clinical Cardiology*. He is presently Professor of Medicine; Director, Cardiovascular Division, Medical University of South Carolina.

PREVIOUSLY TABLED AMENDMENTS TO THE CONSTITUTION

The following proposed Amendments to the Constitution of the South Carolina Medical Association will be taken from the Table and voted on at the next Annual Meeting of the House of Delegates, April 28-May 1, 1977 at the Hilton Hotel, Myrtle Beach, South Carolina, to wit:

ADDTO: Article 5, Section 1: so that it will read: “(10) and the parliamentarian of the House of Delegates with vote.”

CHANGE: Article IX, Section 1 to read: “The officers of the Association shall be a President, a President-Elect, a First Vice President, a Second Vice President, a Secretary, a Treasurer who may or may not be a member of the Association, and one Councilor from each of the Medical Districts in the State.”

CHANGE: Article VI, the term “The Vice Presidents” be deleted and the terms, “The First Vice President and The Second Vice President” be substituted therefor.

CHANGE: Article IX, Section 3 to read: “A First Vice President, a Second Vice President, a Secretary, and a Treasurer shall be elected annually.”

CHANGE: Article IX, Section 2, Sentence 2 to read: “In the event of the death, or removal of office for any cause, of the President-Elect, or in the event of the ascendancy of the President-Elect to the Presidency, a successor shall be chosen as a special order of business at the beginning of the first ensuing session of the House of Delegates.”

SOCPAC LUNCHEON SPEAKER CONGRESSMAN KENNETH HOLLAND

The South Carolina Political Action Committee is pleased to have Congressman Kenneth Holland as speaker at the 1977 SOCPAC Luncheon.

Congressman Holland was born on November 24, 1934, is married and has three children. His academic background includes graduation from Gaffney High School, an A.B. Degree in Journalism from the University of Alabama in 1960, and LL.B. Degree from the University of South Carolina Law School in 1963.

He was admitted to practice law in the state of South Carolina in August of 1963.

Mr. Holland is active in numerous civic and religious organizations, including the Jaycees, of which he is State Vice President, the Kiwanis

Club, and the Methodist Church.

Congressman Holland served in the United States Army Reserve, from which he was honorably discharged in 1959 having attained the rank of Sergeant E-5.

His career spans many areas, including Member of the South Carolina Highway Commission from 1972 to 1974, during which time he was Chairman of the Legislative Committee. He is a member and Chairman of the Executive Committee of the Kershaw County, South Carolina, Hospital Board.

Mr. Holland was elected to Congress as a Democrat from the Fifth Congressional District in November of 1974, and was re-elected to the 95th Congress on November 2, 1976.

COMMITTEE REPORTS

(Continued from page 181)

AD HOC COMMITTEE ON RE-DISTRICTING

Two meetings have been held of this Committee. After extensive discussion and study, and at the direction of the majority of the Committee, the following report is submitted for information.

The recommendations are as follows:

1. That there be two Councilors representing each District in which 300 or more members of the SCMA are enrolled. One Councilor must come from the metropolitan area and one Councilor must come from the rural area. (At the present time, this will increase the Council by three.)
2. That a "metropolitan area" be defined as "a County Medical Society with 200 or more SCMA members."
3. That a District having more than 300 members, but not having 200 members in a County Society, would have two Councilors; but not from the same County Medical Society.

C. Guy Castles, Jr., M.D., Chairman

SOUTH CAROLINA HEART ASSOCIATION 1977 SCIENTIFIC SESSIONS, MAY 5-7, 1977

The South Carolina Heart Association has scheduled its 1977 Annual Assembly and Scientific Sessions for May 5-7, 1977 at the Mills Hyatt House in Charleston. The program has been designed to appeal to a broad spectrum of the medical community.

Topics include "Surgical Treatment of Coronary and Valvular Heart Disease," "Echocardiography," "Origins of the Heart Sounds," "Temporary Pacing in Myocardial Infarction," "Influence of Respiration on Heart Sounds," "Exercise Testing and Cardiac Rehabilitation," and "Angina with Normal Coronary Arteriograms."

Information and Registration forms may be obtained from the South Carolina Heart Association, 2864 Devine Street, P. O. Box 5937, Columbia, S. C. 29250.

REFERENCE COMMITTEES*

SECTION 26: SCMA BY-LAWS: "The Speaker of the House of Delegates shall appoint from the members of the House of Delegates the committees enumerated in this section and such additional committees as the House may approve. Each committee shall consist of five members, a chairman to be designated by the Speaker. These committees shall serve only during the session at which they are appointed."

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AMENDMENTS TO THE
CONSTITUTION AND BY-LAWS

REFERENCE COMMITTEE ON
MISCELLANEOUS BUSINESS

* Appointees to 1977 Reference Committees will be listed in Delegates' Handbooks, but were not available at publication deadline

PHYSICIAN RECRUITMENT/PLACEMENT

The following physicians are actively seeking practice appointments in South Carolina:

GENERAL SURGERY — Age 30. Univ. of Alabama, 1973. Residency, Univ. of Alabama Medical Center, 1973-75; Charlotte Memorial Hospital, 1975-78, General Surgery. Board eligible, 1978. Licensed in two states. Interested in partnership, single-specialty group, or solo practice situation in large metropolitan area. Available 7/78.

OPHTHALMOLOGY — Age, 34. Univ. of Alabama School of Medicine, 1968. Residency, Gorgas Hospital, Canal Zone, 7/69-6/70, Internal Medicine; 7/74-1977, Ophthalmology. Board eligible, Ophthalmology, 1/78. Licensed in three states. Seeks partnership, single-specialty group or solo practice situation in community of 10,000+. Available 7/77.

INTERNAL MEDICINE — Age, 28. Meharry Medical College, 1973. Residency, George W. Hubbard Hospital of Meharry Medical College, 7/74-6/77, Internal Medicine. Board eligible, 1977. Licensed in S. C. Seeks solo, partnership or multi-specialty group in community

of 25,000+. Available 7/77.

FAMILY PRACTICE — Age, 27. Univ. of Iowa, 1974. Residency, Moses H. Cone Hospital, 7/75-6/77, Family Practice. Will be board eligible 1977. Licensed in two states. Interested in partnership, single-specialty group or multi-specialty group in community of 10,000+. Available 9/78.

GENERAL SURGERY — Age, 32. Howard Univ., 1970. Residency, Georgetown University Hospital, 7/71-10/71 and 10/73-6/75 and S.U.N.Y. at Stony Brook, N. Y. 7/75-6/77, General surgery. Will be board eligible 7/1/77. Academic appointment, S.U.N.Y. at Stony Brook, 7/76 to present. Seeks multi-specialty group, single-specialty group or partnership in community of 10,000+. Available 7/77.

If interested in any of these physicians or seeking a physician to join your practice contact:

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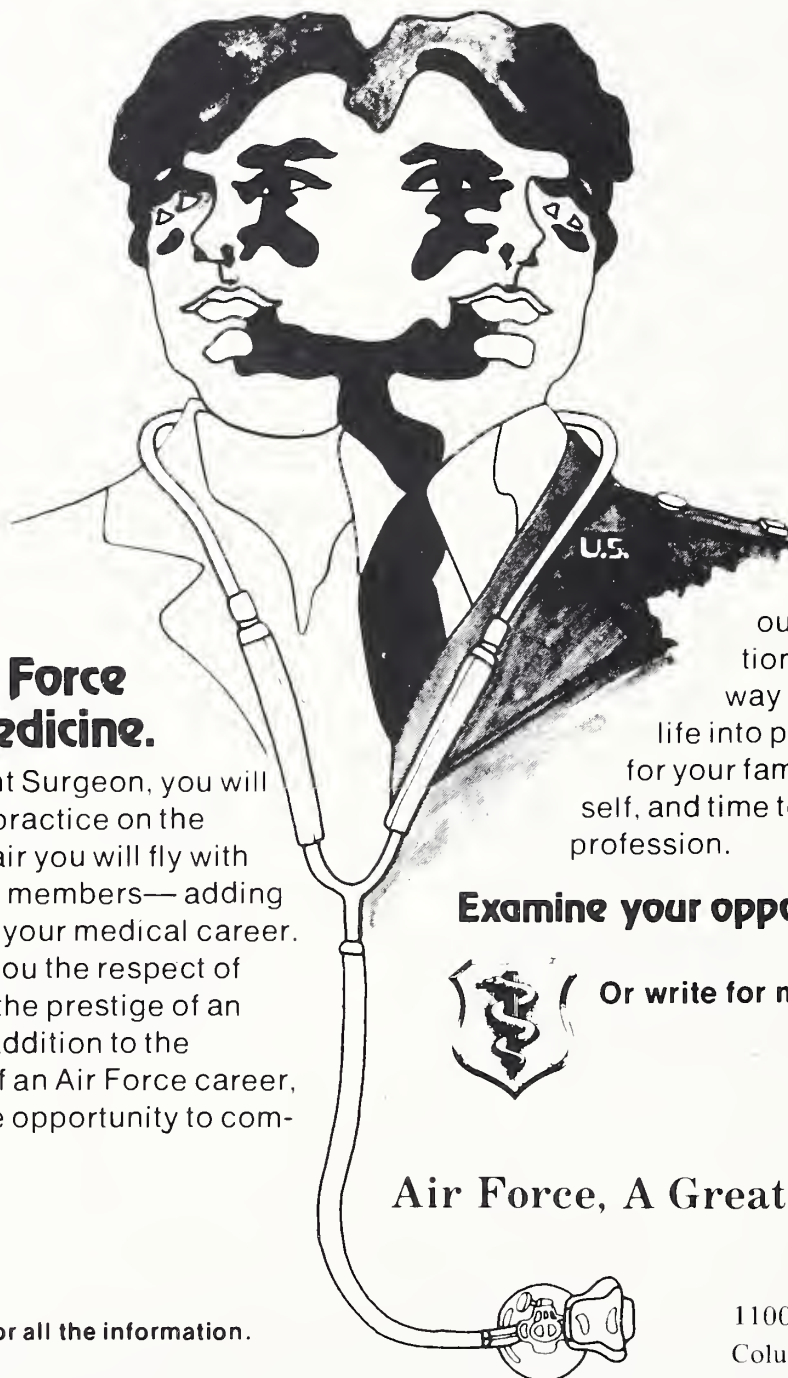
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Contact: Rural Health Delivery Project (Address Above)

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SOUTH CAROLINA DERMATOLOGICAL ASSOCIATION

The South Carolina Dermatological Association will hold its annual meeting April 30 and May 1 at the Myrtle Beach Hilton Hotel. Dr. Alexander Fisher, Clinical Professor of Dermatology at New York University Medical Center will hold a seminar on Contact Dermatitis Saturday, April 20, from 9 a.m. til 12 noon. Dr. Ray Noojin, Clinical Professor of Dermatology, University of Alabama School of Medicine, will discuss Dermatological Problems Sunday May 1 from 9 a.m. until 10 a.m., followed by a round-house discussion.

CLASSIFIED

CONFERENCES FOR MEDICAL PROFESSIONALS
A calendar listing of over 500 national/international meetings, conferences and seminars in the medical sciences for 1977. All medical specialties included. Send a \$10.00 check or money order payable to Professional Calendars, P. O. Box 40083, Washington, D. C. 20016.

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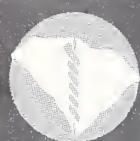
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Contributions of Original Articles

Length — Short articles of about 2,500 words (about 8 typewritten pages, double spaced) are preferred. Longer articles will defer to the shorter ones in schedule of publication.

Manuscripts should be typewritten, double spaced, and the original and a copy submitted.

Illustrations — Ordinarily publication of 4 small illustrations or the equivalent accompanying an article be paid for by The Journal. Any number beyond this must be paid for by the author except under unusual conditions. Illustrations should be sent as glossy prints or graphs in black ink with lettering large enough to show after reduction.

References — Should conform to the following order: surname and initials of author, title of article in short letters, name of periodical, with volume, page, month, day of month, if weekly, and year — e.g.: Lee, G. S.: Heart rhythm following therapy with digitalis. Arch Int Med 44:554, Dec. 1942. They should be listed numerically in order of appearance in the text. Standard abbreviation for journals should be used. Note that periods are used with these abbreviations as indicated by the Index Medicus. Other abbreviations should be standard — e.g., mg, ml, Gm.

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THE JOURNAL

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BEHAVIOR MODIFICATION IN THE MANAGEMENT OF OBESITY

ROBERT MALCOLM, M.D.*

ELIZABETH RIDDLE, M.S.W.*

HAL S. CURREY, B.S.*

JAMES D. SEXAUER, M.D.*

Obesity is epidemic in the United States today; its association with other medical and surgical conditions is well known. Treatment has traditionally been dismal. Recently, however, application of behavior modification techniques has provided new direction for management. Well-controlled studies have shown that use of behavior modification techniques results in more obese individuals losing more weight than any previous single combination of techniques.¹ Most significantly, these studies revealed that many individuals continued to maintain their weight loss for at least a year and some individuals continued spontaneous weight reduction outside a treatment program.

These promising results stimulated the establishment of the Weight Management Clinic at the Medical University of South Carolina. The purpose of the clinic has been threefold:

1. To provide health care professionals with a useful resource for the management of obesity.
2. To provide a setting to conduct studies in the psychological, behavioral, metabolic, and pharmacologic aspects of obesity.
3. To provide a practical setting for training of health care professionals in current behavior modification techniques for the management of obesity.

Although clinic staff members utilize a variety of treatment modalities, the basic approach is behavior modification. The clinic's therapeutic goal is to alter maladaptive patterns of exercise and food consumption. Following general principles of behavior modification, the clinic staff helps the patient identify and measure eating behaviors. The patient is encouraged to control stimuli that precede target behaviors. Rewarding events that follow eating are abolished or altered. In addition, techniques that specifically control the act of eating are introduced.

METHODS

Individuals seeking treatment at the Weight Management Clinic come from two general sources. Originally, all individuals were referred by physicians, nurses, dietitians, social workers and other health care professionals. At the present time, approximately 40 percent of the clients of the clinic are direct referrals from other clients who have participated in the program. Direct

* Department of Psychiatry and Behavioral Sciences, Medical University of South Carolina

BEHAVIOR MODIFICATION

referrals must contact their personal physician while in treatment in the Weight Management Clinic. In cases involving special medical problems, direct communication is established between the clinic staff and the clients' family physician. All fees are prepaid to enhance motivation. A portion of the fee (20 percent) is refunded at the end of each course if the individual has attended 75 percent of the classes.

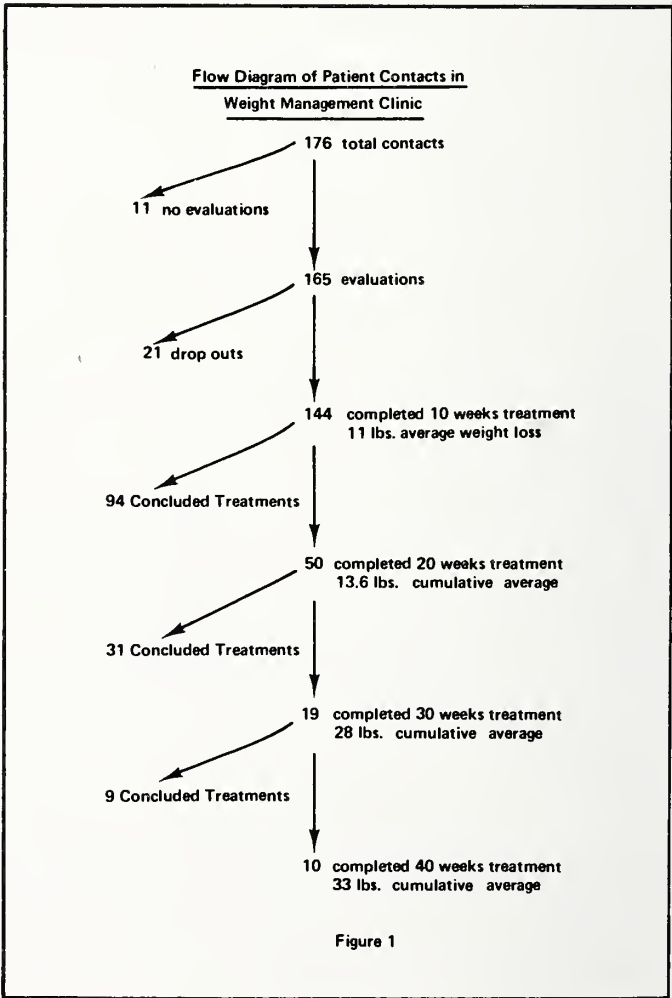
Upon referral, individuals are evaluated, clinic procedures are explained, and information regarding significant medical, surgical, or psychiatric problems is obtained. Since most individuals are already in the care of a physician, the rejection rate for treatment is quite low. Of the 176 patients screened in the first 18 months of operation, only three were referred for psychiatric treatment before admission to the clinic; only one was referred for surgical evaluation. Following screening, clients attend one session at which they formalize their participation in the clinic, making an agreement specifying a weight loss goal. They are also instructed to use an eating diary to obtain comprehensive information about present eating patterns. Information gathered includes what is eaten, quantity of food, preparation methods, time of day and time spent eating. Other information includes with whom food is consumed, and activities associated with eating. Patients are supplied with techniques and forms which require daily monitoring of their weight, food consumption, and exercise patterns. Although keeping an accurate eating diary is laborious, most individuals realize that good record-keeping is the first step in modifying maladaptive eating behaviors. Patients collect these data for one week during which they maintain their normal life style and eating habits. Eating diaries are collected at the second session and evaluated by the clinic staff. Also at the second session, a brief review course in principles of diet and nutrition is taught.

Although 81 percent of the patients in our clinic had received similar instruction in other weight reduction programs, most of the patients regained the weight previously lost in such programs. Knowledge of the proper diet clearly does not assure weight loss.

In the remaining ten sessions, individuals are taught well established pertinent principles of behavioral change²⁻⁶. Briefly, these fall into categories of *monitoring functions*, *control of stimuli* (signals) that precede eating, *direct*

change of parameters of eating, e.g. eating rate and modification of the consequences of eating. Responses of family members and other individuals close to the over-eater are emphasized. Information is provided for family and friends to promote more effective interaction with the person who wishes to lose weight. The clinic also offers a special behavior modification group for family members who wish to attend classes with the overweight patient.

After the completion of a basic twelve-week behavior modification course, the individual can elect various courses of action. A few individuals may reach modest weight goals. Some individuals may continue weight reduction under the supervision of their family physician or through a private weight-reducing group. Some individuals are referred for further medical or surgical evaluation because of problems appearing during the basic course. Individuals who have failed to master the techniques taught in the first 12 weeks are encouraged to repeat the basic course. Others may continue in more specialized clinic classes. Specialized classes for more general aspects of problem-solving related to weight reduction are offered. Some individuals enter classes using the newer, safer anorectic drugs.



RESULTS

Figure 1 is a flow diagram for the progression of 176 patients in the first 18 months of clinic operation. Eleven persons obtained preliminary information about the clinic but failed to participate in any of the classes. Of the 144 individuals completing a course, 94 lost an average of 11 lbs. and withdrew from treatment. Of the remaining 50, 31 completed 20 weeks' treatment and lost an average of 13.6 lbs. Of the 19 remaining, 9 completed 30 weeks and lost an average of 28 lbs. The remaining 10 completed 40 weeks of treatment and lost an average of 33 lbs. The average weight loss by all participants was approximately one pound per week of treatment. The average weight loss per patient is clearly associated with the continued attendance in the clinic. Upon completion of the course of treatment the clinic staff attempts to contact and weigh all subjects every six months. Forty individuals have been followed in this manner for an additional period of up to 18 months or for an average of 12.2 months. Fifteen of these individuals (37 percent) have maintained their weight loss or continued to lose weight. Further data will be published when available. All the results so far compare favorably with those reported by Stunkard⁷ who followed 1200 patients over a 30-year period and found that virtually none maintained a weight loss for longer than one year.

TEACHING OF HEALTH CARE PROFESSIONALS

Since its inception, the Weight Management Clinic Staff has offered to train any interested health care professional wishing to learn techniques of behavioral management of obesity. Thus far, six physicians, two dietitians, two social workers, and three nurses have participated. Individuals trained in the clinic receive didactic and written material on basic behavior modification procedures and then observe classes conducted by clinic staff. Each trainee is then encouraged to conduct classes under supervision.

RESEARCH

Research in the Weight Management Clinic is currently conducted in several areas. Short-term studies to identify behavioral, social, and psychological predictors of weight loss are in progress. Recently the clinic has begun collaboration with the MUSC Division of Endocrinology in a long-term study of metabolic aspects of

obesity. Other studies involving social class aspects of obesity have been recently completed. The clinic's basic behavioral techniques are evaluated and revised yearly; overall outcome rates will be compared for patients completing treatment during each given year.

CONCLUSION

The Weight Management Clinic at the Medical University provides a setting for patient care, teaching, research, and evaluation of treatment modalities. Because behavior modification techniques appear more promising than previous approaches to the treatment of obesity, they are emphasized. Since obesity is a chronic condition, determination of long-term efficacy of behavioral management awaits completion of long-term follow-up studies. If long-term efficacy is demonstrated, behavioral treatment of obesity will become an important therapeutic procedure for health care professionals. □

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THE CURRENT DIAGNOSIS AND TREATMENT OF RENAL INJURY

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Evaluation of injury to the genitourinary (GU) system is often omitted in the management of the severely injured patient. However, after the patient has an adequate airway, good cardiac output, hemorrhage under control and major fractures immobilized, the GU system should be systematically evaluated. This examination can be accomplished in the process of evaluating the intra-abdominal and pelvic organs. This paper is primarily concerned with the diagnosis and treatment of injuries to the kidney.

DIAGNOSIS

Evaluation of the kidneys should be carried out simultaneously with the evaluation of intra-abdominal and vascular injuries. This evaluation is as important in the patient with blunt abdominal trauma as in the patient with a penetrating abdominal injury. The kidney should be studied initially with a high dosage, infusion excretory urogram with nephrotomograms. The urogram should be performed after a retrograde urethrogram or cystogram has been performed if bladder or urethral injury is suspected.

Not all severely injured patients need to have a genitourinary system evaluation. Specific indications for an excretory urogram are: 1) blunt abdominal trauma with any degree of hematuria or history of hematuria, 2) auto-pedestrian injury, 3) unexplained ileus or abdominal pain, 4) pene-

trating abdominal wounds, 5) fracture of the lower ribs or transverse processes of the lumbar vertebrae and 6) presence of a flank mass or costovertebral angle tenderness.¹

The retrograde pyelogram is extremely useful in delineating injury to the pelvis or collecting system but has been shown to be less helpful in diagnosing injury to the renal parenchyma. It should be used without hesitation when clearly indicated, as in the case of a non-functioning kidney.² Renal angiography is indicated when 1) there is inadequate delineation of renal parenchyma with nephrotomography and 2) there is suspicion of a renal artery injury (i.e. failure of excretion on the urogram).

Many people feel that scintillation scanning is valuable in the evaluation of renal trauma and might serve as a screening device for arteriography. Freeman and associates noted in 28 patients that the scan was positive in all patients with a positive excretory urogram. It was also positive in five patients with a negative urogram. In all cases in which the scan was negative the arteriogram was also negative. Arteriograms define the exact nature of injury in patients with a positive renal scan.³⁻⁴

Radwin and associates feel that when the severity of renal damage cannot be established by the diagnostic studies, it should be done by transabdominal exploration with the renal vessels controlled in the midline. In their series this led to a low rate of nephrectomies and a high rate of successful repair. The non-operative manage-

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ment of an inadequately defined renal injury cannot be considered conservative.⁵

CLASSIFICATION OF RENAL INJURY

When the evaluation is completed, renal injuries can be divided into three major categories which are 1) renal contusion, 2) renal laceration, and 3) renal fracture (including vascular injury).⁶ This classification is helpful in deciding on the proper course of management. Renal contusion is characterized by hematuria, transient shock, flank tenderness and rigidity, clear psoas and renal outline on the scout film of the urogram, normal to diminished function on the urogram, and normal collecting systems without extravasation of dye on the urogram or retrograde pyelogram.

Renal laceration is characterized by hematuria, shock (transient or progressive) and flank tenderness, rigidity and/or mass. The radiographic findings with a laceration are obliteration of renal and/or psoas outline on the scout film, disruption of the renal outline and extravasation of dye with an intact vascular supply and drainage system on the urogram and angiogram.

Renal fracture or vascular injury is usually but not always characterized by hematuria, shock that does not respond to transfusion, and flank tenderness, rigidity and/or mass. Radiographically you see obliteration of the renal and/or psoas shadows on the scout film; diminished or non-function on the urogram, and disruption or occlusion of the vascular supply, and/or disruption of the renal parenchyma on the angiogram. It should be noted that 23% of patients with renal trauma do not have significant hematuria, and 34% have a normal excretory urogram.⁷

TREATMENT OF RENAL INJURY

When a presumptive diagnosis of the type of renal injury has been made, the treatment regimen can be formulated. Renal contusions resulting from blunt trauma which are not associated with significant bleeding should be managed with: 1) strict bed rest for a minimum of 10 days to decrease the possibility of secondary hemorrhage; 2) antibiotics to prevent infection of any perirenal hematoma resulting in formation of a perinephric abscess; and 3) observation for signs

predicting failure of conservative treatment. These signs include temperature elevation (sign of perirenal infection), expanding flank mass, anemia, tachycardia, (signs of secondary hemorrhage), hypertension of renal origin and an abnormal excretory urogram prior to discharge from the hospital.¹

As a general rule, all penetrating wounds to the abdomen are explored today. If there is evidence of renal involvement the kidney should be explored as well. Observation of a stable flank hematoma is unreliable and should not be used as an indication against exploring the retroperitoneal space.

Renal laceration poses the greatest problem in selecting a course of management. Minor cortical lacerations can be treated non-surgically like a contusion. However, most renal lacerations should be explored and repaired as the nature of the injury dictates. Cass and Ireland⁸ compared the conservative and surgical management of the more severe degrees of renal trauma and found that delayed operation was required in 37.5% of the patients managed conservatively and that an additional 25% of the conservatively managed group was discharged from the hospital with a non-functioning kidney. In addition, they found that the hospital stay was 45% longer with conservative management. Specific indications for surgical intervention are 1) involvement of major intrarenal vessels or the collecting system; 2) significant hemorrhage; 3) occlusion of the renal artery (on angiogram) and/or 4) significant extravasation of dye on the excretory urogram.

Technical points to keep firmly in mind in the exploration of an injured kidney are 1) control of the vascular pedicle prior to the opening of Gerota's fascia; 2) establishment of capsular integrity by approximation in either the residual capsule or with a piece of fascia or peritoneum; 4) establishment of hemostasis by suture ligation of vessels; 5) debridement of devitalized tissue and 6) establishment of flank drainage.

Renal fractures or vascular injuries should always be explored surgically and most of these injuries result in nephrectomy.² "Bench" surgery (i.e. surgery where the kidney is removed from the body for repair) at present should be reserved for those centers where the techniques are being developed. Data on the late complications of "Bench" surgery are not available at the present time.

LATE COMPLICATIONS OF RENAL TRAUMA

There are several late complications of renal trauma which should be looked for in follow-up. Hypertension is probably the most common late sequella⁹ but A-V fistula, renal atrophy, perirenal cyst, hydronephrosis, infection, renocolic fistula, and renal artery aneurysms are also encountered.

SUMMARY

High dosage infusion excretory urogram with nephrotomograms, retrograde pyelograms, scintillation scans, and renal angiograms all play a specific role in the management of renal trauma. The breakdown of renal injuries into the categories of renal contusion, renal laceration and renal fracture is important in formulating the treatment regimen. It is often difficult to decide on the course of therapy for blunt trauma which has resulted in a renal laceration. Most renal contusions can be treated non-surgically but all renal fractures should be explored. □

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SOME THOUGHTS ABOUT THE PROFESSION OF MEDICINE

LEON BANOV, JR., M.D.*

The Charleston County Medical Society was organized for both scientific and professional purposes. Since other local institutions such as the Medical University of South Carolina, the hospitals, and the specialty societies now carry out first class scientific programs, the Charleston County Medical Society has chosen to reduce its scientific activities and to promote its professional purposes.

Unless we can define a profession and the attributes of a professional, we cannot realize the professional purposes of the Charleston County Medical Society.

The best definition I have found is that stated by Roscoe Pound:

“A profession is a group of men pursuing a learned art as a common calling in the spirit of public service — no less a public service because incidentally it may be a means of livelihood. The exigencies of the economic order require most persons to gain a livelihood and the gaining of a livelihood is a purpose to which they are constrained to devote their activities. But while in all walks of life men must bear this in mind, in business and trade it is the primary purpose. In a profession, on the other hand, it is an incidental purpose, pursuit of which is held down by traditions of a chief purpose to which the organized activities of those pursuing the calling are to be directed primarily and by which the individual activities of the practitioner are to be restrained and guided. A profession, such as the ministry, medicine, law, teaching, is much more than a calling which has a certain traditional dignity. Certain other callings in recent times have achieved or claim a like dignity, but lack the essential primary purpose. For example, if an engineer

discovers a new process or invents a new mechanical device he may obtain a patent and retain for himself a profitable monopoly. If, on the other hand, a physician discovers a new specific for a disease or a surgeon invents a new surgical procedure they each publish their discovery or invention to the profession and so to the world. If a lawyer has learned through research or experience something useful to the profession and so to the administration of justice he publishes it in a legal periodical or expounds it before a bar association or in a lecture to law students. It is not his property. He may publish it in a copyrighted book and so have rights to the literary form in which he put it. But the process or method or developed principle he has worked out belongs to the world.”

“There is no such thing as competition for clientage in a profession. Every lawyer should exert himself fully to do his tasks of advice, representation, and advocacy to the best of his ability. But competition with fellow members of the profession in any other way is forbidden. Competition belongs to activities which are primarily acquisitive. It is not allowable in those primarily for public service. Next to the idea of public service the important ideas in a profession are organization and pursuit of a learned art.”

“But in its idea and in its history a profession is a body of learned men pursuing a learned art. Learning is one of the qualities which sets off a profession from a vocation or occupation. Professions are learned from the nature of the art professed. But they have also a cultural ideal side which furthers the exercise of the art. Problems of human relations in society, problems of disease, problems of the upright life guided by religion are to be dealt with by the resources of cultivated intelligence by lawyer, physician, and clergyman.”¹

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From the Presidential Address to the Charleston County Medical Society, November 9, 1976.

THE PROFESSION OF MEDICINE

There should be no competition for patients in the medical profession. Every physician should exert himself to his tasks of diagnosis and treatment to the best of his ability. But competition with fellow members of the profession in any other way is forbidden.

Next to the idea of public service the important ideas are organization and pursuit of a learned art.

The professional purposes can be better understood when we state the attributes one expects of the medical profession.

First is superior technical competence. This means the acquisition of knowledge and skills acquired after long training. This we learn and use, and this we teach and transmit.

The medical profession has a code of ethics for its members to follow in their relationship to patients and to their colleagues. This code of ethics is the equivalent of a professional conscience.

The medical profession has considerable power over self-regulations. It should have more. The medical profession, not outsiders, decides what constitutes satisfactory performance. And we all realize only too well the danger of silence in the face of mistakes.

There is what is called professional attitude and etiquette and this promotes a feeling of group solidarity. This can be achieved by getting to know one another and by promoting fellowship and friendship.

The medical profession is a high prestige occupational group and is ready to respond to the call of the sick. We want to keep it that way.

The profession has institutionalized the teaching and transfer of medical knowledge. The profession is concerned with medical education — both the science and the art of medicine.

In the past, the practitioners of medicine had a considerable input and influence in the teaching of medical students. They indoctrinated the students with the ethics and attributes of the profession. By example the practitioners of this community greatly influenced the medical students. Wearing the gown in the school they taught the science of medicine and wearing the town clothes they practiced both the science and the art of medicine. Believe me I learned much more of the art of medicine by their example than by their teaching.

What is the art of medicine? Basically, it is the

art of the physician getting along with the patient. Both the patient and the physician reacting and interacting, the physician and patient working for the patient to be satisfied with the services of the physician. On today's scene it means the physician has to successfully treat the patient and to know when to call in consultation. By his performance the physician has not only to render top quality care to the patient but also to get the patient to realize it.

Who is better qualified to teach the art of medicine than the man who puts his name and his reputation on the line every time he treats a patient?

The student should not only learn the science of medicine; he should also be indoctrinated into the art of medicine. Upon graduation he should join and participate in the County Medical Society, the South Carolina Medical Association, and the American Medical Association.

At medical school the faculty instructs and supervises the science of medicine. However, the faculty should be active members of the medical profession by joining the Charleston County Medical Society, the South Carolina Medical Association, and the American Medical Association. After medical school the professional organizations should show concern not only for the display of science but also the art of medicine. Both are important. Both should be blended to produce a good physician.

There is a need to strengthen the medical professional organizations. This can best be achieved by the practitioners of medicine working closely and harmoniously with the educators, researchers, and administrators.

The medical profession, needs to work together and in unity to achieve the purpose of the profession: to benefit the sick person. We should all know that the profession of medicine does not bestow value upon us; rather we should bestow value upon the medical profession. Therefore, I urge you to give your time, your talent, your treasury to promote and to advance the profession of medicine. □

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CAN THE PROFESSION OF MEDICINE SURVIVE?

CLAUDE EMERSON WELCH, M.D.*

A few years ago Allan Toffler wrote his book "Future Shock." At that time his conclusions seemed bizarre and far fetched. At the present time they no longer seem that way; the changes now are occurring so rapidly that the medical profession may be said to be punch drunk.

This impression of cataclysmic change was strengthened immeasurably two years ago when a group of sixteen persons selected by the AMA was given an extraordinarily thorough tour through the great cities of the Peoples Republic of China. We were shown many of their medical installations, and I returned with two very important concepts. The first was that the whole complexion of the medical profession can change completely overnight. In 1949 their traditional doctors, who essentially were trained only in folklore, herbalism and acupuncture, were legalized; the ten thousand Western trained doctors were told that the two groups must meet on equal terms. The second important concept was that in this communist country egalitarianism was made the order of the land. This turned the physician into a medical worker on exact equality with the barefoot doctors or other hospital workers who had essentially no scientific training. The degree of Doctor of Medicine was abolished. The person in charge in each hospital was someone appointed from the Peoples Revolutionary

Committee; all of the "health workers" were equal under him. The eminence previously given to scholars and accorded to knowledge was erased.

We must be prepared to deal with the many rapid changes that may very well wreck the foundations of professionalism as we know it today. I am sure that most doctors are unhappy about this prospect. We must recognize, however, that as individuals there is very little that we can do about it; it is necessary if we wish to have any influence for us to belong to an organization that has some power to effect what we believe is right.

I should like to speak first about the various organizations that have such power and their effects upon professionalism and then to consider very briefly other burning problems that are facing medicine as a profession.

There are certain power groups that are emerging at the present time that I believe offer little hope for successful preservation of the profession. They include unions, Health Service Areas (HSAs), and certain governmental agencies of which the Federal Trade Commission (FTC) may be taken as an example.

Unions are bound to increase in power as time goes on. Their main argument is that things are bad at the present time and we need a change. Interns and residents particularly in metropolitan areas are accepting such organizations as one way in which they may be able to change the course of medicine.

Unions have no public service responsibility.

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From an address presented to the Charleston County Medical Society, November 9, 1976.

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Their only weapon is a strike. Doctor strikes pose serious ethical questions.

My conclusion is that unions will become more attractive as time goes on but will never promote the ideals of a profession.

A new bureaucracy has been established by the formation of *Health Service Areas (HSA's)*. Here certain medical catchment areas have been outlined by the Government: most of them lie within states but some do cross state boundaries. The theory is that in each of these areas the residents should determine health policies. Any new construction that is proposed must be approved by the people by certificates of need. This arrangement resembles the present Chinese method of forming policy at the level of the commune. In China even medical students are chosen by the communes; those students who show a spirit of service will be proposed to medical schools for admission.

Can the public decide what constitutes the best medical care? HSA's will restrict the independence of doctors. Although the theory behind them is that local control should prevail, eventually they will be so restricted by Federal regulations that the HSA's can turn into a strong federal system of medicine.

There are many government agencies that tend to restrict the attributes of the medical profession. Of these, I would like to choose only one — namely the *Federal Trade Commission (FTC)*. There have been several actions carried out by it recently; others are in progress. One of the first is the provision that advertising should be carried out by the professions. One need only to look at the advertising that is going on now with pharmacies to see what some of the effects will be. Soft music plays on the radio while the virtues of Librium are extolled and the fact pointed out to the public that this drug can be bought more cheaply in some of the large chain stores than in the small pharmacies. As a result many small pharmacies are closing and the supermarkets are gaining all the trade. In the long run one does not know what these cut-rate stores will do with their new-found strength. Medicines may remain loss leaders but in all likelihood prices will increase as soon as competition has been eliminated.

The same course could happen with medicine. It is not likely because the medical profession is strongly opposed to such advertising. However, as a test case, the FTC has started legal action

against the Connecticut Medical Society for opposition to advertising.

On the other hand, I see no reason why the public should not be furnished with a directory of physicians together with such items as their speciality designations, and their qualifications insofar as training, and Board certifications. To offer cut rates or weekend blueplate specials seems repulsive to me and I trust that these practices will never prevail.

Another move by the Federal Trade Commission is of great interest. Inasmuch as minority groups must be represented in various trades, a move is now on foot for the same procedure to be extended to crediting. It is obvious that if minority groups (whoever they may be) must be given a certain number of slots regardless of qualifications, the whole system of licensing that we have erected could be destroyed. This could have an extremely serious effect and is a move that certainly should be opposed if we are to maintain professionalism in medicine.

There is one group that I believe will not have a great deal of effect upon professionalism — *the Health Maintenance Organizations (HMO's)* that are appearing in some parts of the country. Although they vary in their qualifications the essential features are the same. They emphasize preventive medicine and pre-payment of medical costs. This raises the question of the effectiveness of preventive medicine. I must admit that I do not have any great illusion that emphasis on this branch of medicine is going to be very helpful. For example, how can our common surgical problems be prevented: hernia, appendicitis, gallstones, cataracts, hemorrhoids? The same problems arise with medical diseases. How does one prevent arteriosclerosis, how does one prevent diabetes? At the present time we have good screening tests that will detect these diseases at their outset and therefore modify their courses but screening is different from prevention. If money is to be spent in preventing disease, the proper place to put it is in basic research. Otherwise we are simply attempting to prevent progression of a disease; and doctors have been occupied with this duty for many years.

The advent of HMO's will have little effect on the status of professionalism in medicine, unless HMO's begin to advertise when the same question might be raised as in the preceding paragraphs.

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There are a number of organizations which may tend to preserve or expand professionalism in medicine. They include the AMA, CMSS, PSROs and the Boards of Registration in Medicine.

The AMA remains the one large organization of doctors that has great political power and is not afraid to use it. It is superbly democratic. Any person who has never attended a meeting of the House of Delegates and one of the Reference Committees should do so. If he thinks that he knows all the angles about a particular subject he should listen to the material that is presented to the Reference Committees; the House of Delegates must make a decision and support it after listening to all of the evidence.

This does not imply that there are no problems associated with the AMA. It is hard to maintain membership with the high dues that are required to support the programs. There is still the threat of the Internal Revenue Service hanging over the taxes for income received from advertising in their medical journals. One other problem that has bothered me personally a great deal is that the AMA has consistently refused to consider the importance of the speciality society organizations, despite the warnings of the trustees and the Long Range Planning Council. This is a problem that will not go away and must be faced.

One of the organizations that is now assuming greater power is the *Council of Medical Speciality Societies*. It has become, since its inception a little over a decade ago, a very large organization and now has almost 185,000 members and does outrank the AMA in that respect. At the present time, dues are comparably trivial so that it has none of the financial problems of the AMA. However, it remains to be seen whether or not this giant organization will be hamstrung by the fact that so many individual societies belong to it. Since these societies are chiefly active in the field of postgraduate and continuing education, it is an open question as to whether or not political clout can be exerted by the CMSS in the foreseeable future. Only time will tell.

PSRO's are in a state of development at the present time. Personally, I believe this is the last chance for the doctors to control the profession by coordination of quality together with cost. It must be recognized that there are many health planners who believe that PSRO's will not succeed. The bureaucrats will then make the point

that Government must step in. For example, already Program Review Teams have been organized by Bureau of Quality Assurance that will overlap PSRO's and will almost surely be more concerned with cost than with quality care.

I believe that the big problem is whether the medical profession will accept the challenge that PSRO's are providing. It is obvious that some form of quality control will be essential for any organization that dispenses large funds. These controls have been established in the various insurance plans including Blue Shield and they must be established in all national health payment plans. Hopefully, the challenge will be accepted and the doctors will remain in charge. Otherwise the tune will be called by the bureaucrats; professionalism will again suffer a great reverse.

Among the organizations in which I place hope are the Boards of Registration in Medicine. They are being given increasing powers, with the approval of medical societies and other professional organizations who recognize the difficulties that attend the administration of justice by any other method. For example, professional organizations can discipline only their own members; furthermore the only major disciplinary act they can carry out is revocation of membership in the society. Therefore, there are many doctors who are not subject to stringencies afforded by a State Medical Society or by a professional organization or if censured by such a society the physician can resign and avoid penalty. Boards of registration cover all physicians and are provided with political teeth so that the level of medicine can be raised by their activities. They furnish very important cooperative arrangements between government, law and the medical profession that can be extremely fruitful.

I now would like to speak very briefly about other problems of major importance to medicine. I have chosen five of them.

The first is that of *health manpower*. There has been a great expansion of medical schools and an increase in the number of medical students in the past few years. What we have done in the United States, however, is trivial compared to what has happened in other countries. For example, having just returned from France, I have learned that there are about 50,000 medical students in that country — about the same number that we have in this country. Many of them will be

weeded out by examinations before they graduate. However, there is no question but that an enormous number of doctors are being graduated in that country. The same is true in Spain. Recently the University of Madrid held examinations for entrance into medical schools. Forty percent of all candidates failed. Strong political pressure developed, posters appeared on the walls, and finally the decision was reversed so that all students who wished to were allowed to enter medical school. One school in Guadalajara has 5,000 medical students. The number is paralleled in many schools in other Latin American countries. All in all it is very clear that there is an enormous number of people who wish to enter the practice of medicine. A recent report by the Carnegie Foundation emphasizes that by 1980 the USA will have an oversupply of physicians — more than any other country per capita except Russia and Israel.

I am not sure that this is good for the country. For example, suppose that a situation is postulated in which there is one surgeon who would carry out a hundred operations during the course of the year, or alternatively there are a hundred surgeons present who would carry out one operation a year. What method serves the public best? It seems perfectly obvious that skills cannot be maintained if there are too many people engaged in servicing a given group.

The problem has been compounded by a recent law of Congress which has indicated that any American student who has spent two years in a foreign medical school and has passed part I of the National Board Examinations must be admitted to one of our medical schools for the last two years. This is a great infringement upon the right of medical schools to pick their students and would allow many individuals who had been previously disapproved by medical schools to enter.

The problem that is most overwhelming in the minds of most of the medical profession is that of *malpractice*. I hope that progress will be made within the course of the next few years. We believe that we have come a long distance in Massachusetts, particularly with the establishment of Medical Tribunals consisting of a Superior Court Judge, a lawyer and physician that hear any prospective case of malpractice within a matter of a few weeks after suit is filed. No aggrieved patient is denied the right of a jury trial. If the Tribunal decides against the patient, the case may be car-

ried into the tort system but a bond of \$2,000 must be posted so that nuisance suits largely have been eliminated. At the present time, the record in Massachusetts since this rule has been in effect has been good. Approximately a third of the cases that reached the Tribunal have been dropped, and at the present moment very few have gone on to trial.

The huge *cost of medical care* is another problem that we must face. This cost is not due to the professional fees paid to physicians. Such payments account for only about 20 percent of our total medical bills of over a hundred billion dollars a year. Many factors that can be considered including the intrusion of so many machines into the practice of medicine so that it has become almost unsupportable to avoid the use of many diagnostic and therapeutic measures that are extremely expensive and many of which in the long run have comparatively little return. The problem is very clear, but the methods by which these costs can be reduced are likely to prove troublesome, not only financially but also ethically. A deliberate attempt to cut the number of hospital beds will cut utilization. Long waiting lists that form the hallmark of medical practice in Great Britain may develop.

Those who place economics above all else must face the fact that the average length of life for Medicare patients after hospital admission is comparatively brief. Some medical planners are asking the question as to whether or not the country can afford such an expenditure of funds. There has been a suggestion by some sociologists that diseases considered to be curable below a certain age should not be considered to be curable above that age and that no attempt made to prolong life by what might be life saving operations. These prospective solutions emphasize the ethical principles that must be considered, and re-emphasize the fact that the success of medical care cannot always be measured in economic terms.

National health insurance is on the doorstep. It will become a fact within the course of a few years and perhaps much sooner than that if the new political power alignment is able to force it through. Certainly catastrophic care would seem to be indicated at this time.

Finally, the absolute necessity of the maintenance of *biomedical research* must be stressed.

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CAN THE PROFESSION OF MEDICINE SURVIVE?

(Continued from page 210)

The President's Panel that met for approximately a year recently rendered its report. The problems that will have to be solved in coming years will include particularly the requirement for more funds in these inflationary times and also answers to the criticism of some senators that research has tended to be too theoretical and not practical enough for the needs of our society. The magnificent report prepared by the Panel does in my mind answer many questions and indicates that the lag period between major discoveries and practical application has been short. However, a stable source of funds for fundamental research is essential if we are to continue to pursue that intellectual quest which is another characteristic of a profession.

CONCLUSION

I should like to quote the words of Chief Justice Brandeis: "A profession is an occupation for which the necessary preliminary training is intellectual in character, involving knowledge, and to some extent learning as distinguished from mere skill. It is an occupation in which the amount of financial return is not the accepted measure of success."

The future course of medicine and medical practice is uncharted and may be perilous. The best hope for survival of medicine as a profession is to support those organizations which combine professional objectives with the power to effect change. For these organizations, we must choose leaders with vision and independence. They must be given the power to command and must be free from the chains of the past. □

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QUESTIONS MOST FREQUENTLY ASKED REGARDING SOCIAL SECURITY DISABILITY PROGRAMS

FRED H. FELLERS, M.D.*

Over four million persons receive monthly disability checks under the Social Security Disability Insurance Program. As of December 1975 an additional 2,207,107 persons with low income and resources were receiving payments because of disability or blindness under the Supplemental Security Income Program. In South Carolina alone, there were 41,532 disabled workers with 27,949 dependents drawing monthly benefits totaling \$10,234,252.00 under the Disability Insurance Program. As of June 30, 1976, there were 35,491 disabled beneficiaries under the Supplemental Security Income Program receiving \$4,197,000.00 in monthly benefits in this state.

For the past year I have described these programs to the county medical societies, hospitals, and other medical groups. In this brief paper, I have attempted to answer the questions most frequently asked at these meetings.

I. WHAT TYPES OF DISABILITY PROGRAMS ARE AVAILABLE?

There are two types of disability programs executed by the Disability Determination Division for the Social Security Administration. These are:

(1) *Social Security Disability Insurance Program*

This program provides benefits to a disabled worker under age 65 and his family if he has worked under Social Security long enough and recently enough to be covered, and meets the legal requirements of disability. The definition of disability under the present law is: "Inability to engage in *any* substantial gainful activity by reason of any medically determinable physical or mental impairment or impairments which can be expected to result in death or which have lasted or can be expected to last for a continuous period of not less than 12 months."

Benefits received under this program are derived from the Social Security Trust Fund, which is comprised of all payments made into the fund by employers and employees.

(2) *Supplemental Security Income Program (Frequently referred to as SSI)*

This program created by recent legislation with first benefits payable in January, 1974 is federal supplemental income furnished directly to the aged, blind, and disabled whose financial resources and income, including regular Social Security benefits, are within limits specified by the law.

Funds for payment of benefits under this program are derived from the federal general tax revenues and state taxes.

II. WHO MAY APPLY FOR DISABILITY BENEFITS?

Any individual or his representative who feels that he or she is entitled to the benefits under either program has the right to file an application with the Social Security District Office. The District Office will verify the age, social security number, dependents, earnings record, income and resources and then forward the application to the Disability Determination Division to determine the severity of the disability.

III. WHO MAKES THE DECISION ON DISABILITY?

The decision of disability is made by a team composed of a Disability Examiner and a Medical Consultant in the State Agency. In South Carolina this agency is a division of the state Vocational Rehabilitation Department.

One of the main reasons for the state Vocational Rehabilitation Department administering this program is the anticipation that many of those found disabled will have conditions that are amendable to Vocational Rehabilitation services and will be able to be restored to productive activity. Also, those applications that are denied benefits are referred to VR for consideration for services.

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IV. ON WHAT BASIS ARE DISABILITY DECISIONS MADE?

Medical evaluation criteria used in determining disability are spelled out by regulations and further clarified in the Listing of Impairments Handbook. Impairments are described in terms of specific symptoms, signs, and laboratory findings which may be presumed severe enough to prevent a person from doing any substantial work for a period of a year or longer or to result in death. It is of interest to note that these criteria were worked out with the aid of practicing physicians, major medical organizations, and the Social Security Administration Medical Advisory Committee along with the Secretary of HEW before enactment by Congress.

If an individual meets these criteria, is not working, and meets the technical requirements, he is allowed disability benefits. In certain cases the impairment(s) may not specifically meet the criteria in the listings but the severity is sufficient to prevent substantial gainful activity. These cases can be allowed as "equalling" the medical listings.

If the claimant does not qualify for benefits based solely on the medical evidence, his age, education, and vocation are brought into consideration to assess the remaining functional ability for substantial gainful activity.

V. WHERE IS THE MEDICAL EVIDENCE OF DISABILITY OBTAINED?

Since the Medical Consultants in the State Agency do not examine the applicant, it is necessary to obtain medical evidence from the claimant's private physician and hospital records.

By far the largest amount of medical evidence is obtained from the applicant's own private physician. At times it may be necessary to request physicians to do further studies in order to obtain objective evidence. Of course, when this is the case, the State Agency will compensate the physician for his services.

At other times, the private physician or medical consultant may recommend that the applicant be examined by a specialist. In these cases, an independent consultative examination is purchased. With the applicant's consent, this information will be furnished to his private physician.

In all cases, where possible, the State Agency prefers to deal with the applicant's own private physician when obtaining medical evidence.

VI. WHAT TYPE OF MEDICAL EVIDENCE IS NEEDED?

Medical evidence needed includes the history, the physical examinations, and any supporting laboratory data that would help to define the extent of the impairments. Often there is a question concerning the date of onset of disability. For this reason, it is important that all examinations and tests be dated.

In cases of cardiovascular disease, it is necessary to have EKG's (with copy of tracing), chest x-ray with CT ratio, and any laboratory evidence of end organ damage. In cases of pulmonary disease, in addition to chest x-ray, pulmonary function studies would be of value, and results along with the tracings should be included. In all cases of neoplasm, we need a copy of the pathology report, treatment and response. The report should be in sufficient detail to allow the evaluating team to determine the severity and expected duration of the impairment without actually seeing the patient.

The disability decision rests largely on the completeness of the medical evidence furnished. The treating physician is neither asked nor expected to make a statement regarding disability.

VII. WHO CAN GET BENEFITS BECAUSE OF DISABILITY?

Under the Social Security Disability Insurance Program, benefits can be paid to:

(1) A disabled worker under age 65 and his family, if the individual meets the work requirements and severity of impairments as stated under I above.

(2) A person continually disabled since childhood (before age 22) if one of his parents (in some cases a grandparent) is covered under social security and retires, becomes disabled or dies. The mother of this disabled son or daughter may also qualify for monthly benefits regardless of her age, if the disabled son or daughter is dependent upon her for personal care.

(3) A disabled widow or widower, 50 years or older, if the late spouse was covered under Social Security and the widow or widower's impairment meets the legal requirement of severity.

Under the Supplemental Security Income Program: the aged, blind and disabled individuals in financial need are eligible for benefits. Medical criteria of disability and blindness under the Supplemental Security Income Program

SOCIAL SECURITY DISABILITY PROGRAMS

generally parallel those of the Social Security Disability Insurance Program.

VIII. WHAT RIGHT OF APPEAL DOES THE CLAIMANT HAVE IN CASES OF ADVERSE DECISION?

If the initial claim has been denied, the claimant may file for reconsideration within 60 days of receipt of a denial notice. The case will then be re-evaluated by a different Medical Consultant and Disability Examiner.

After denial on the reconsideration level, the claimant has 60 days to file a hearing request. Once this request is filed, the case comes under the jurisdiction of the Bureau of Hearings and Appeals, a part of the Social Security Administration. It is no longer under the jurisdiction of the State Agency.

Hearings are conducted by a Presiding Officer. A Presiding Officer may be either an Administrative Law Judge or a Hearing Examiner. The appellant may appear in person, present witnesses, and additional evidence. The Presiding Officer may request consultative examinations from a physician of his own choice. The appellant may or may not be represented by counsel depending upon his choice. After all evidence has been reviewed, the Presiding Officer renders a decision.

If the appellant is dissatisfied with the decision, he may request a review by the Appeals Council. The Appeals Council may deny the request for review if it would result in no advantage to the appellant, or it may grant review and affirm, modify or reverse the Presiding Officer's decision.

The next step of appeal is a civil action in the United States District Courts.

IX. HOW MANY CASES GO TO THE HEARING LEVEL?

With the year ending June 30, 1976, there were 28,124 cases denied benefits in South Carolina. Of this number approximately 3,100 filed requests for hearings before a Presiding Officer and there were 1,220 reversals of the State Agency's decision. This shows that the number of cases going to a hearing is proportionately small.

X. HOW CAN A PERSON BE REMOVED FROM THE DISABILITY ROLLS?

There are two ways other than by death. One is return to work, and the other is by medical improvement.

A. Return to Work: When Social Security payments appear on the earnings record of a disabled beneficiary, the case is reviewed. If it is determined that the earnings signify substantial gainful employment, then the disability payments are discontinued. There may or may not be a trial work period before benefits are ceased.

B. Medical Improvement: Certain types of impairments that are expected to improve with treatment will have a re-examination date set at the time of allowance. When the re-examination date arrives, the case is returned for reassessment of the disability. Impairments that fall in this category are as follows:

(1) *Tuberculosis* — Without pulmonary insufficiency or severe organ damage due to extra pulmonary disease.

(2) *Functional psychotic disorders* where onset is established within the two year period preceding the State Agency determination of disability.

(3) *Functional non-psychotic disorders*

(4) *Active rheumatoid arthritis*, without residual structural deformity.

(5) Any case in which corrective surgery is contemplated or where adjudication takes place during post-surgical convalescent period and recovery can be anticipated. This includes cases involving surgery for heart and kidney disease, nerve root compression, and lumbar (lumbosacral) fusion.

(6) *Obesity* — In and of itself producing manifestations limiting work capacity.

(7) *Fracture(s)* of any bone(s) without severe residual functional loss or structural deformity.

(8) *All infections*

(9) *Peripheral neuropathies*

(10) *Sarcoidosis* without severe organ damage, i.e., pulmonary, ocular, renal, etc.

(11) *Progressive Neoplastic disease* is highly probable but full medical work-up falls short of a definitive diagnosis at the time of adjudication.

(12) *Neoplastic disease* which has been treated and incapacitating residuals exist, but improvement of the individual is probable.

(13) *Epilepsy*

Under the present regulations covering re-examination cases, it is no longer necessary to

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SOCIAL SECURITY DISABILITY PROGRAMS

(Continued from page 218)

determine the degree of improvement, but to determine the current physical and mental status. In order to qualify for a continued allowance, the medical evidence of disability must meet the same requirements of severity as in an initial claim as noted above.

C. Failure to Follow Prescribed Treatment: In certain cases, it is possible to deny benefits for willful failure to follow prescribed treatment. It is first necessary to establish that the impairment meets the severity and duration requirement to be disabled. It must be clearly shown that treatment would restore the individual sufficiently to engage in substantial gainful activity. The necessary treatment must be available to the individual and the refusal of treatment must be willful on the part of the claimant.

XI. WHY SHOULDN'T THE TREATING PHYSICIAN MAKE A STATEMENT REGARDING DISABILITY TO THE PATIENT OR ON THE RECORD?

If the physician makes a statement that the patient is disabled and the individual is subsequently denied, a problem may result with the patient blaming the physician for failure to obtain benefits. It is best for the physician to explain to the patient that he will furnish his findings in the case, and it will be up to the Disability Determination Division to determine if the individual is eligible. The treating physician is neither asked nor expected to make a disability determination. Probably the most helpful aid in discussing disability with the patient is to be familiar with the requirements as described in the physicians handbook entitled "Disability Evaluation Under Social Security." We have attempted to supply all physicians with a copy of this handbook, but if you do not have one, please contact our office and we will furnish you one at no cost.

XII. WHY DOES AN INDIVIDUAL WHO MEETS THE SEVERITY OF IMPAIRMENT REQUIREMENTS FAIL TO RECEIVE BENEFITS?

This creates misunderstanding on the part of both the patient and the physician. These are known as technical denials. Under the Disability Insurance program this usually means that the individual has not worked for a sufficient period of time at work covered by Social Security to be

fully insured or has not worked recently enough. Under the Supplemental Security Income Program, the individual may be denied if income and resources are above the allowable limits regardless of the severity of the impairments. The technical requirements are part of the Social Security law and cannot be changed without amendments to the law or new laws.

XIII. WHAT IS THE ROLE OF THE PRACTICING PHYSICIAN IN THESE PROGRAMS?

(1) *Know the programs* — Your knowledge of the Disability Programs can mean better service to your patient. You will be in a better position to counsel your patient on how and when to apply. Your understanding and encouragement may also motivate the patient's interest in rehabilitation and help him return to productive activity.

(2) *Furnish medical evidence of record* — A prompt and fair decision rests largely on the completeness of clinical evidence obtained. The report should be in sufficient detail to permit the evaluating team to determine the severity and expected duration of the impairment without actually seeing the patient (dates, history, objective findings, and special procedures, such as laboratory x-rays, EKG's, etc. are needed).

(3) *Perform basic and consultative examinations* — Many Supplemental Security Income applicants do not have a treating physician or medical source. Therefore, it is necessary for us to purchase examinations. Also in disability insurance cases, it is often necessary to purchase examinations by specialists or special diagnostic procedures. If you are interested in doing these examinations, contact the South Carolina Vocational Rehabilitation Department for the necessary forms. The fee schedule is the same as for all Vocational Rehabilitation clients.

At the present time, there is a shortage of physicians doing examinations for us, and often we have to transport the patient to another town in order to obtain examinations. This usually means a lengthy delay in processing these claims and is costly.

If more physicians would participate in our program, it would not be a burden on anyone. Furthermore, it would insure that the applicants are receiving expeditious and fair adjudication on sound medical evidence. □

MEDICAL EVALUATION OF THE HIGH RISK DRIVER

JANET A. SMITH*

LEO L. WALKER, M.D., M.P.H.**

The Medical Advisory Board on Driver Licensing, an adjunct to the South Carolina Highway Department, functions to promote safety in driving and to protect our fellow citizens from the risk of accidents caused by drivers with medical impairment. When a person is observed to be a potentially dangerous driver and is subsequently reported as such to the Highway Patrol either by an officer of the Patrol, or by the driver's physician or a member of the driver's family, or if that driver has been involved in four or more reportable accidents within a two-year period, he is required to be re-examined by the Highway Department. The driver's license may be suspended until it is determined whether or not he or she is fit to drive a motor vehicle. At the time the driver reports to the Department, he is asked to complete a personal medical history form, which includes questions concerning high risk physical conditions that could impair his driving ability. The driver's physician is requested to complete a similar form. If neither the driver nor his physician reports any significant medical findings, the Highway Department re-

examines the driver and makes a decision regarding his fitness to drive.

If questionable physical conditions are present, however, the driver's application is referred to the Chairman of the Medical Advisory Board, who in turn sends the application to the appropriate consultant on the Board for evaluation. The Board consists of thirteen members, representing the specialties of internal medicine, cardiology, orthopedics, ophthalmology, neurology and psychiatry. Of the thirteen members, ten are members of the South Carolina Medical Association. The Board members remain anonymous at all times.

When necessary, the Board recommends limitation of driving privileges, which range from "daylight and/or neighborhood driving only" to complete restriction of driving. In contested cases, the Deputy Chief Driver License Examiner will arrange a hearing in the presence of a State Medical Officer. The following guidelines are used in determining these limitations:

1. Heart and Cardiovascular Diseases — "no driving" conditions
 - A. For six weeks after an acute myocardial infarction or coronary bypass surgery, or other open heart surgery, if there are no heart rhythm disturbances.
 - B. Angina pectoris with minor exertion (Functional Class III).

* Coordinator Medical Advisory Board on Driver Licensing, Department of Health and Environmental Control.

** Chairman Medical Advisory Board on Driver Licensing, Department of Health and Environmental Control, Deputy Commissioner for Health Affairs, Columbia, S. C. 29201.

HIGH RISK DRIVER

- C. Stokes-Adams attacks (any syncope caused by reflex cardiac asystoles or marked bradycardia).
- D. Aortic stenosis.
- E. Ventricular premature beats occurring greater than six per minute, or from multiple foci or with fixed coupling.
- F. Carotid sinus syndrome.
- G. Acute rheumatic fever.
- H. Acute pericarditis.
- 2. Cerebrovascular Diseases
 - A. Post cerebrovascular accident — may apply for license three months after event with medical certification and road test — repeat medical evaluation required every six months.
 - B. Senile arteriosclerosis — no driving if symptoms include syncope, personality change, sensory or motor deficits, or impairment in alertness or ability to make decisions.
- 3. Neurological
 - A. Narcolepsy — no driving.
 - B. Epilepsy (except nocturnal seizures and petit mal) —
 1. No driving until seizure free one year with or without medication. If patient has been seizure free and on no medication for one year, follow-up may be discontinued, otherwise, re-evaluation required every year.
 2. Nocturnal seizures only — no license for six months, then license may be granted if patient has exhibited no seizure activity while awake.
 3. Petit mal — license permitted upon certification of doctor that patient is compliant in taking medication and is competent to drive.
 - C. Impairment of memory or judgment associated with chronic brain syndrome, chronic alcoholism, cerebral arteriosclerosis, mental retardation, post traumatic or other neurological disease — no driving.
 1. Mental retardation — IQ below 70, no driving.
- 4. Psychiatric
 - A. Psychopathic or sociopathic personality — no driving.
 - B. Chronic relapsing alcoholism or drug abuse — no driving.
 - C. Psychotic depression — no driving.
- 5. Vision
 - A. No license if acuity is worse than 20/70 with both eyes corrected.
 - B. No license if one eye is blind or 20/200 or worse unless corrected vision in other eye is 20/40 or better.
 - C. No license if visual field is less than 110 degrees.
 - D. No license with uncontrolled diplopia.
- 6. Metabolic
 - A. No license with uncontrolled hypoglycemia.
 - B. Insulin controlled diabetic with insulin reaction in absence of other medical circumstances should not be permitted to drive for twelve months after last reaction.

Possessing a driver license is a privilege. Our fellow citizens expect a safe environment in which to drive. Physicians see patients frequently who fall into the various categories of conditions necessitating restriction of driving. It is their responsibility to these patients, and to the people who travel the highways with them, to encourage them to limit or discontinue their driving. Drivers who represent a serious safety risk should be reported to the Medical Advisory Board or to the local Highway Patrol Commander for observation and possible action. To deny this responsibility is to do a great disservice to the citizens of South Carolina. □

President's Page



TO MY FELLOW PHYSICIANS:

UNITY

For my first message to you I have chosen to talk about unity.

The old quote of "gentlemen we must stand together or surely we shall fall separately," has no truer application than the battle of the medical profession against the onslaught of its adversaries. To list these adversaries would take up too much space but suffice it to say they are numerous and varied. The social planners, particularly, go into ecstasy when they envision controlling the medical profession.

When one talks to representatives of medicine in England and Canada, the warning is always given for us to organize now and stick together. An old ploy is to divide and conquer, play one group against the other. We must not let this happen to us and the best way to prevent it is to be organized on local, state and national levels.

In another vein, let us differ with one another as individuals, but once a decision is made we must present a solid front.

It is difficult for me to believe that a professional man would not feel obligated to be a member of and support his professional organization. The goal of the SCMA is to have every physician in the state of S. C. to be a member of his local Medical Society and the SCMA.

There is strength in numbers and unity. Let us strive for both.

Waitus O. Tanner, M.D.
President

AUXILIARY PRESIDENT'S PAGE

THE PRESIDENT'S ANNUAL REPORT

Our goal for 1976-1977 has been to "JOIN US — WE CAN DO MORE TOGETHER" to COMMUNICATE, EDUCATE, MOTIVATE and PARTICIPATE for the SCMA Auxiliary and the SCMA.

We have had an increase in *MEMBERSHIP* this year, plus the addition of two new auxiliaries — Beaufort and Conway, making a total of 17 auxiliaries.

COMMUNICATING and *EDUCATING* have come easy for our members through many different channels. We have published four issues of *SCAN*, had an article each month in the *SCMA JOURNAL*, held a workshop put on by the outgoing state officers and committee chairmen for the incoming state and county officers and committee chairmen and *all* members interested in learning more about auxiliary work, held a "Parents Anonymous" Conference, held a number of educational programs in the area of Child Protection, co-sponsored a state wide meeting of all county Multi-Disciplinary committees on Child Protection, and held a two-day Health Careers Fair, attended by approximately 3,000 students from over the state.

Our members have been *MOTIVATED* by well over 100 wonderful *COMMUNITY HEALTH* and *FAMILY HEALTH* programs and projects. *PARTICIPATION* has been excellent. Many auxiliaries have done testing and screening for sight and hearing disabilities, reading and learning disabilities, hypertension, pap smears, and many have worked with the swine flu immunization program. Many have worked with the Health Careers Clubs, Meals on Wheels, Bloodmobile, etc. One auxiliary showed the film, "Drugs Are Like That," to 1,350 third grade students. Several auxiliaries have visited patients in the nursing homes weekly, or monthly, giving parties, showing films, having puppet shows, etc. One of our members helped to organize HOPE, INC. (Helping Other People Effectively), and members of her auxiliary work as case workers to supply food, clothing, fuel, counseling, job placement, medical and health care to needy families in their community.

Fifty cents per member of our state dues goes to our Health Career Scholarship Fund and \$1.00 per member goes to the Student Loan Fund. Five scholarships were given this year from the state *HEALTH CAREERS FUND*, totaling \$650.

Ten auxiliaries contributed \$306 to the SCMA Auxiliary *BENEVOLENCE FUND*. One auxiliary contributed to the Hollis Center for Retarded Children; another gave a large donation to the Child Development Center. Several auxiliaries gave large donations to the "Reach To Recovery" program to buy brassieres for the mastectomy patients.

AMA-ERF continues to be one of our major projects. As of April 10, 1977, the SCMA Auxiliary total contribution was \$16,877.49, and the SCMA total contribution was \$2,737.00. The majority of these funds have been earmarked to be returned to the medical schools in South Carolina.

Six counties have entered a total of 12 projects in the *PROJECT BANK*, and seven counties have withdrawn a total of 17 projects.

Some of the items collected, through our *INTERNATIONAL HEALTH* project, for distribution to underprivileged areas are: 2,237 packaged drugs, 296 crocheted leper bandages, rolled bandages, ace bandages, 6 orthopedic braces, bed gowns and 110 hygiene kits. Twenty-three physicians, and a physician's son, have volunteered medical services in foreign countries.

We are grateful to the SCMA, not only for their guidance throughout the year, but also for our own rent-free office in the SCMA building in Columbia.

A good auxiliary doesn't just happen. It is the result of diligent and faithful service, of not just one or two people, but of the entire membership. Members of the SCMA Auxiliary have achieved their goal in 1976-1977 by coming together, staying together and working together.

Mrs. Lucius M. Cline, Jr.

Editorials

PROFESSIONAL RESPONSIBILITY

Required courses fill the curriculum of the junior and senior years of medical school: medicine, surgery, obstetrics, pediatrics, psychiatry, to name but a few. Only one course, we have learned, is required of junior and senior law students. Its title: "Professional Responsibility."

The special articles in this issue of the *Journal* focus on the viability of our professionalism. The purpose of this editorial is to reflect upon the need for re-defining some of the traditional concepts of professional responsibility in medicine and in law, if our current systems of practice are to survive largely intact.

There are, of course, obvious differences between the professional responsibilities of doctors and lawyers. To borrow from the passage by Roscoe Pound quoted in Dr. Banov's essay, doctors deal with "problems of disease," while lawyers deal with "problems of human relations in society." It follows that doctors work in a system of unity of purpose: everyone tries to help the sick person get well. It also follows that lawyers work in a system of conflicting purposes: an adversary system. I have always considered doctors to be the more fortunate, for our system affords a greater idealism of purpose. In law, there are winners and losers; in medicine, we all win or lose depending on the patient's outcome.

But here we emphasize the similarities. The doctor's only *responsibility* is to his patient; the lawyer's only *responsibility* is to his client. At least, these are the usual definitions.

Is there need for change?

The classic statement of the lawyer's responsibility to his client was expressed by Lord Brougham in Queen Caroline's case.¹ Threatening, literally, to destroy the kingdom, Lord Brougham asserted:

"... an advocate, in the discharge of his duty, knows but one person in all the world, and that person is his client. To save that client by all means and expedients, and at all hazards and costs to other persons, and, amongst them, to himself, is his first and only duty; and in performing his duty he must not regard the alarm, the torments, the destruction which he may bring to others. Separating the duty of a patriot from that of an advocate, he must go on reckless of the consequences, though it should be his unhappy fate to involve his country in confusion."

The lawyer defends this position, in part, by the presence of a zealous advocate on the other side.

Let us reflect upon Lord Brougham's statement, and imagine its application to contemporary medicine. A battle is in progress. Standing over the bed of a seemingly hopelessly ill patient in a busy intensive care unit, the physician confronts the head nurse, the chief of service, the chief of staff, the hospital administrator, the chairman of the utilization review committee, and the representative of the insurance carrier. He shouts:

"This is my patient! I don't care if we use the last drug in the pharmacy! I don't care if we use

the last unit of blood in the blood bank! I don't care if we have to close down the rest of the intensive care unit! I don't care if we bankrupt the hospital, and exhaust the funds of the entire Medicare system! This is my patient, and I am going to see that he gets whatever he needs to pull him through this!"

The scene is, of course, improbable; it is drawn to illustrate that, carried to its logical extreme, the physician's role as zealous advocate can also "involve his country in confusion."

Dr. Welch, in this issue, analyzes some of the factors which threaten the framework of medicine as we know it. The factors are many and complex, but I agree with those who believe that foremost among them is the problem of rising costs. Many question whether our economy can continue to support the escalating cost of medical care. This reality may force cataclysmic changes in the system of health care delivery, and we may not like them.

I see two major causes of the escalating cost of medical care. Both might be resolved in part, or at least "contained" at an acceptable level, by re-thinking the concept of "professional responsibility."

The first cause is the much-publicized "malpractice insurance crisis." Rising premium rates have already palpably affected medical practice. The problem is not unique to medicine. Just as some physicians have been forced "out of business" by the high premium rates, industries and small businesses are being threatened by the growing problem of "products liability" litigation. Is there need for re-defining "professional responsibility" in the law?

Lawyers argue that their client's rights are too precious to change the system for one segment of society, however great the cost. They see the lawyer-client relationship just as we see the doctor-patient relationship: something sacred, to be preserved without change. Other thoughtful men in the field of law, however, see the need for change. They see the need for major reforms in the tort-liability system. They see the need to refine traditional concepts of judicial fairness, due process, and equal protection. The problem is how to effect workable changes without sacrificing a "fundamental fairness" to each client.

The second cause of escalating medical costs is in our hands to control. This is the problem of the

increasing cost of use of the technology at our disposal.

Every doctor's desire to do "all that is possible for the patient" must, increasingly, be tempered by financial considerations. Our present system simply cannot support the use of all available technology for every patient. It has been pointed out, for example, that widespread application of but a few procedures, such as total hip replacement surgery or the coronary saphenous bypass operation, would threaten the entire structure of the health-care delivery system.² What crisis would ensue should all headache sufferers insist, tomorrow, that their insurance carriers pay the bill for a computerized axial tomography scan of their cranial cavities? Has the enormous rise in national expenditure for laboratory tests (from 5.6 billion dollars in 1971 to 12 billion dollars in 1975) been of real overall benefit to the individuals in our society? Thoughtful physicians can argue that the problem of cost containment in our profession transcends, in a way, the traditional concept of the doctor-patient relationship.

In 1927, Dr. Francis Peabody delivered a lecture on "caring" for the patient, which has become a classic statement of the doctor-patient relationship. A medical student recently contrasted the beautiful simplicity of Dr. Peabody's remarks with the situation 50 years later:

"One can no longer consider the caring role of the physician without pondering issues such as how medical care is delivered to the poor, or the wide use of increasingly expensive technology. Caring includes the noble feelings expressed by Peabody, but it also encompasses the hard realities of equity and cost. A real danger in failing to provide education for caring is that too few physicians are trained to grapple with these latter issues."³

To deal with these problems in our present society, there is no dearth of articulate spokesmen. A veritable onslaught of new journals and periodicals grapple with the issues of medical ethics, philosophy as applied to medicine and science, and medicine-law inter-relationships. But dialogue does not ensure solutions. Dr. Welch relates what happened in China. In reflecting on present problems, I am reminded of America before the Civil War: historians marvel at how so many were so articulate, yet cataclysmic change came nevertheless.

At the root of these issues may be the problem of defining the professional's responsibility. How does he see it? How does society see it? How does his patient (or client) see it?

To answer the question posed by the title of Dr. Welch's essay, our answers should all be a resounding "yes." We must be optimistic. We should have no problem "surviving" if we make certain that our changes are in the interests of society.

CSB

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Congratulations to Donald E. Saunders, Jr., M.D., of Columbia, S. C., who was recently elected to a five year term on the Board of Directors of the American College of Cardiology.

* * * * *

Congratulations also to Harold E. Jervey, Jr., M.D., of Columbia, S. C. who was recently elected Vice President of the Educational Commission for Foreign Medical Graduates. Dr. Jervey is a Past President of the Federation of State Medical Boards of the U. S. A., and has served as its Treasurer since 1961.

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Medicine today is in the spotlight, subjected to all kinds of scrutiny. Your control over patient therapy is being monitored, judged and occasionally abrogated, sometimes by unknown third parties.

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Drug substitution In most states, pharmacy laws, regulations or professional custom stipulate that your non-generic prescriptions be filled with the precise products you prescribe. But in the last five years, a dozen or more State laws have been changed, permitting the pharmacist in most cases to select a product of the same generic drug to fill any prescription.

Ironically, this dilution of physician control has been placed against a background of growing evidence that purportedly equivalent drug products may be inequivalent, since neither present drug standards nor their enforcement are optimal. In fact, the FDA itself says it has not enforced the same standards for hundreds of "follow-on" products that it had applied to the original FDA approvals. Thus physician control over patient therapy is being eroded with a risk that patients may be exposed to drugs of uncertain quality.

The major advertised claim for substitution is reduced prescription prices for consumers. Yet no documentation of any significant savings has been produced.

MAC Maximum Allowable Cost, MAC for short, is a Federal regulation designed to cut the Government's drug bill by setting price ceilings for drugs dispensed to Medicare and Medicaid patients. Unless the prescriber certifies on the prescription that a particular product is medically necessary, the Government intends to pay only the cost of the lowest-priced, purportedly-equivalent,

generally-available product. The effect of the program may be that elderly and indigent patients will be restricted to products which someone in Washington believes are priced right. Practicing doctors will have little to say about administration of the program, since Government will have absolute authority to make its choices stick.

The drug lag The future of drug and device research depends upon a scientific and regulatory environment that encourages therapeutic innovations. The American pharmaceutical industry annually is spending more than \$1 billion of its own funds and evaluating more than 1,200 investigational compounds in clinical research. Disease targets include cancer, atherosclerosis, viruses and central nervous system disorders, among others. But there is a major barrier to the flow of new drugs to your patients: The cost of the research is more than ten times what it was, per product, in 1962; and whereas governmental clearance of new drug applications took six months then, it commonly consumes two years now.

The FDA needs adequate time, of course, to consider data. But it is equally clear that the present approval process contributes to needless delay of needed therapy. That's why the increased efficiency of the drug approval process is vital to all our futures.

If these issues concern you, we suggest that you make your voice heard—among your colleagues and your representatives in State legislatures and in Washington.

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GENERAL SURGERY — Age, 30. Chicago Medical School, Chicago, Ill., 1971. Residency, Medical College of Wisconsin, Milwaukee, Wisc., 6/72-6/76. Board eligible. Licensed in two states. U. S. Air Force, 8/76-8/78. Interested in single-specialty group, partnership or multi-specialty group in large metropolitan area. No preference as to geographical area of state. Salary open. Available 8/78.

INTERNAL MEDICINE — Age, 28. Chicago Medical School, Chicago, Illinois, 1974. Residency, Nassau County Medical Center, N. Y., 7/75-6/77, Internal Medicine. Licensed in N. Y. Board eligible, Internal Medicine, 1977. Seeks partnership, multi-specialty group or single-specialty group in large metropolitan area. Salary open. Available 7/77.

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* * * * *

The American College of Physicians will sponsor the Fourth Biennial Course on "Advances in Internal Medicine — Perspectives and Horizons" June 13-17, 1977 at Banff, Alberta Canada. This postgraduate course is designed for the clinician internist and will include recent advances in pathophysiology and therapy of a broad variety of disease entities. Although broadly based in all specialties, special attention will be given to recent advances in immunologic and renal disease, pulmonary and cardiac disease, hematology, oncology and endocrinology. For further information contact the American College of Physicians, 4200 Pine Street, Philadelphia, Pa. 19104.

* * * * *

The Fourth Annual Aspen Mushroom Conference is scheduled for August 7-12, 1977 at the Hotel Jerome, Aspen, Colorado. It is designed for physicians, amateur mycologists and scientists interested in the identification and toxic properties of mushrooms. The Conference is sponsored by the Colorado Mountain College, Glenwood Springs, and the Beth Israel Hospital, Denver, Colorado. For further information contact: Aspen Mushroom Conference, c/o Beth Israel Hospital, 1601 Lowell Boulevard, Denver, Colorado 80204.

* * * * *

The New York University Postgraduate Medical School announces a course in Nuclear Radiology, to be held May 28 and 29, 1977. This course

provides a comprehensive analysis of the current status of nuclear radiology, and meets the criteria for 12 hours credit in Category I for the Physician's Recognition Award of the AMA. Further information may be obtained from the Registration Office, 550 First Avenue, New York, New York, (212) 679-3200.

* * * * *

The Fifth Annual Meeting of the Southern Perinatal Association will be held September 25-28, 1977 at the Hyatt House in Winston Salem, North Carolina. For information, write Box 3936, D. U. M. C., Durham, North Carolina 27710.

MDA SUMMER CAMP

The Muscular Dystrophy Association is making plans for the 1977 Jerry Lewis Summer Camp, May 29 - June 4 at Camp Bethelwoods in York, South Carolina. Their campers are severely handicapped and may need medical assistance at a moment's notice. If you are a registered nurse or doctor, they need your services as a volunteer during this week. Transportation, room and meals will be supplied. You will not only be helping a very worthy cause, but also gaining experience and having a good time while doing so. For more detailed information, call 799-7435, M.D.A., 2442 Devine Street, Columbia, South Carolina 29205.

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Manuscripts and other correspondence should be addressed:

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We encourage original articles of potential benefit and interest to the members of the South Carolina Medical Association; priorities for publication are indicated in the January 1977 issues of The Journal. Cons articles (of approximately 8 typewritten pages), containing relatively few, well-selected references, are preferred. References should be cited in the text in superscript, e.g., "Bone and colleagues² . . .", and should conform to the following style: "2. Bone, RC, Francis, PB, Pierce, AK: Intravascular coagulation associated with adult respiratory distress syndrome. Amer J Med 61: 585-589, 1976." Ordinarily, publication of four small illustrations or the equivalent will be paid for by The Journal. Authors may assume cost of additional figures.

Manuscripts should be typewritten and double-spaced. The original and one copy should be submitted. A third copy should be retained by the author for use in proofing. Reprints will be made available by the publisher at established rates.



OF THE SOUTH CAROLINA MEDICAL ASSOCIATION

VOLUME 73

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NUMBER 6

SYMPOSIUM: TUBERCULOSIS IN SOUTH CAROLINA

INTRODUCTION: "THERE'S A LOT OF IT STILL AROUND"

Ours is a relatively small and poor state, and we are, therefore, not unaccustomed to looking bad sometimes when national statistics are tabulated. We are proud and we'd rather live *here*. Thus, the finding that in recent years very few states have had a higher incidence of new cases of tuberculosis might cause little alarm. After all, the disease is uncommon even here.

But such did not used to be the case. These findings are *new*. A decade ago, the incidence of tuberculosis in South Carolina approached the national average. Since then, other states have made greater progress toward the control and ultimate eradication of this disease. It seems unlikely that these observations are due to statistical quirks or to improved methods of case-finding. It's time to take stock.

This symposium is largely due to the interest and enthusiasm of Dr. Eric Brenner. Serving as director of the outpatient clinic division of the state's Bureau of Tuberculosis Services, Dr. Brenner has spent the past year analyzing the contemporary epidemiology of tuberculosis in South Carolina.

The lead article is a fitting historical perspective on tuberculosis in South Carolina by Dr. James W. Fouche, a thoracic surgeon who now serves as overall director of the Bureau of Tuberculosis Services. The second article summarizes the role of the Lung Association (formerly the Tuberculosis Association), to whom we are grateful for partial financing of this symposium issue. Dr. Brenner's article makes clear the basis for the continued occurrence of tuberculosis. The importance of preventive treatment with isoniazid

(INH) becomes evident from careful study of Figure 1 of his analysis.

The potential for hepatic toxicity during INH treatment has made "preventive" use of this drug a controversial subject. Drs. Farer and Glassroth, of the Center for Disease Control, have provided us with a definitive and authoritative reference for all physicians who are confronted, from time to time, with the highly practical question of *who* should receive preventive therapy.

The fifth article illustrates problems now faced in community hospitals and outlines a program for tuberculosis surveillance. Drs. Dowda and Di Salvo, from the Department of Health and Environmental Control, provide an important statement on the role of mycobacteriology laboratories. Finally, a near-fatal case of miliary-meningeal tuberculosis during pregnancy provides a background for a brief survey of extra-pulmonary tuberculosis, the form of the disease which all physicians are likely to encounter from time to time in many bewildering guises.

There is an ongoing movement to return tuberculosis from sanatoria to the mainstream of American medicine. In presenting this symposium to the physicians of South Carolina, the editor takes the liberty to quote Dr. Edward Parker of the Medical University of South Carolina, a dean of tuberculosis management in our state, from a conversation which took place at the recent SCMA convention.

Dr. Parker put it succinctly: "There's a lot of it still around."

□

SIXTY YEARS OF PROGRESS IN TUBERCULOSIS: HISTORICAL REVIEW IN SOUTH CAROLINA

JAMES W. FOUCHE, M.D.*

The control of tuberculosis has been a part of the South Carolina State Board of Health's program for many years. Before the days of actual methods of control, such as early diagnosis, and even before the days of proper sanatorium, the State Board of Health gave the problem consideration. Many reports of the State Board of Health indicate that in 1899, Dr. T. Grange Simons, who was chairman of the executive committee, in consideration of his report to the legislature, discussed in some detail the need for services of a bacteriologist who could make determinations as to certain communicable diseases, such as consumption. In the minutes of the executive committee held on July 25, 1899, the following statement was made: "Dr. Robert Wilson called attention of the board to the prevalence of tuberculosis in many herds of milk cows in the state and the danger to the public health of the use of milk and flesh of these animals. He advised that tuberculin tests should be applied to ascertain the number of infected cattle and to suggest the proper disposition of these diseased animals for protection of the healthy ones, and guard against this infection spreading to the people of the state." As a result of this, an act was passed for control and suppression of tuberculous diseases among livestock. At the October meeting of the same year, Dr. Wilson suggested establishments for consumptives, and that it was the duty of the State Board of Health to encourage in every possible way the erection of such a sanatorium. At this time serious thought was given to the need for each county to have a home for those in advanced stages of tuberculosis who were in indigent circumstances and could not be properly cared for by their families.

The progress in the management of tuberculosis in South Carolina actually began when the South Carolina General Assembly appropriated ten thousand dollars for the establishment of

a state sanatorium in 1914. Behind the appropriation were two gentlemen who themselves were sufferers of the disease, The Honorable George R. Rembert, Richland County Representative in The State Legislature and Dr. John L. Dawson, President of the South Carolina Medical Society and Professor of Medicine at The South Carolina Medical College. Dr. Dawson is credited with being one of the first men in South Carolina to work for a statewide organization to combat tuberculosis. After recovering from the disease himself, he set about to help others in their fight against the dread and often fatal disease. His campaign served to educate South Carolinians to the necessity of a tuberculosis sanatorium. To Mr. Rembert goes credit for arousing the legislature and stimulating the interest in appropriating funds for a sanatorium. He did not live to see his dream realized, but his widow, Mrs. Annie L. Rembert, took up the battle. Cole L. Blease was Governor of South Carolina and it was rumored that he would veto that part of the appropriation bill which allowed ten thousand dollars for establishing a tuberculosis sanatorium. However, he had been a good friend of George Rembert, and with this in mind Mrs. Rembert herself took the bill to Governor Blease and stood by while he signed the paper which began a movement, which for 60 years has brought relief and health to thousands of citizens.

Another man who had an important role in the establishment of the sanatorium was Dr. George Dick of Sumter, South Carolina. Dr. Dick was chairman of the ways and means committee of the legislature in 1914, and cooperating with Mrs. Rembert, he used his time and influence on the appropriations bill. The development of the sanatorium was placed under the State Board of Health and a committee was appointed with Dr. Robert Wilson of Charleston as chairman. This committee selected a site approximately eight miles from Columbia on a 200 acre tract which belonged to the State Hospital. The committee

* 2841 Sheffield Road, Columbia, S. C. 29204

SIXTY YEARS OF PROGRESS

met in Greenwood in April 1915, and elected Dr. Ernest Cooper, a member of the staff at the State Hospital, as superintendent and on June 5, 1915, the committee named the tuberculosis hospital The South Carolina Sanatorium. The first patient was admitted on May 23, 1915. At that time the building was an open air pavilion for the accommodation of sixteen male patients. This patient spent one night and left, but finally returned after several other patients were admitted to keep him company, and by December 1915, a total of 23 patients had been admitted.

In 1916 a second pavilion providing sixteen beds for women patients was opened and the first woman patient was admitted. By 1920, additional pavilions provided a total capacity of approximately 75 beds, and as the sanatorium slowly grew people throughout South Carolina became tuberculosis conscious and a waiting list for admission to the sanatorium became longer and constituted a serious problem. By 1928, bed capacity increased to approximately 200, and a preventorium was established for approximately fifty children.

Although there had been a marked increase in the number of patients, which was now over 200 with a long waiting list, there had been little advancement in the diagnosis or treatment of tuberculosis. The treatment basically consisted of prolonged bedrest and an adequate diet. Neither had there been any improvement in diagnostic facilities. An X-ray unit was installed for the first time in the latter part of 1927, but had not been put into use, apparently due to the fact that no one had learned the technique of the use of the X-ray equipment or interpreting X-ray films. In July 1928, it was noted that the superintendent was to be required to learn the technique of the X-ray apparatus so that it may be put into actual use and that no charge would be made to the patients. Along about this time the introduction of artificial pneumothorax as a treatment was begun and was quickly accepted as the best method of treatment for pulmonary tuberculosis. Additional procedures that came in to use, in addition to artificial pneumothorax, were pneumonolysis and oleothorax. Phrenic nerve paralysis was a treatment which was also widely used during the 1930 decade.

Dr. Ernest Cooper continued in his efforts to develop a modern hospital for the treatment of tuberculosis, rather than the continued use of

open air pavilions. After several years of planning, on March 2, 1938, a new half million dollar, fire resistant, brick building was opened. For the first time the sanatorium was then able to provide a modern hospital, consisting of an X-ray department, clinical laboratory and surgical department. Thus began an era in which modern, major surgery, consisting primarily of thoracoplasties, was initiated at the sanatorium. Continued demand for bed space was constant with a long waiting list and in July 1951, another brick, concrete and steel building was completed which provided for an additional 200 patients. In August 1955, a third brick structure provided additional space for 114 patients. This brought the total bed capacity at the sanatorium to 594 beds.

The most significant change in the progress of the management of tuberculosis occurred in the decade of 1950, when wide use of antituberculous drugs brought about a marked change in treatment. The drugs became so effective that there was a gradual decline of all surgical procedures until at the present time they are only indicated in a small percentage of patients. Throughout the decade of 1960 began the program of reducing the total time under treatment in the sanatorium, and patients were gradually phased into outpatient drug treatment. This resulted in the average hospital treatment of less than 100 days as compared to 18 to 24 months. Although the number of new cases of tuberculosis reported annually in South Carolina has shown no significant change in the past ten years, the modern management has reduced the average daily census from approximately 600 patients to 100 patients.

Many thousands of patients have been admitted to the sanatorium since the spring of 1915, when its doors were opened. Many have been restored to health while countless others have been protected from tuberculosis. The South Carolina Sanatorium has proved its worth and accomplished its mission. It is predicted that it will soon no longer be needed for the treatment of tuberculosis. □

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2. Wyman, Ben F., The South Carolina Sanatorium, June 30, 1953
3. SoCoSan Piper, Volume 39, Number 5, May 1965

TUBERCULOSIS — A CHRISTMAS SEAL MEMORY

DAVID B. GREGG, M.D.*
KEITH THOMASON**

Shortly after graduation from medical school in 1871, Dr. Edward Livingston Trudeau contracted tuberculosis. Accepting the medical opinion of the day that "I had consumption — the most fatal of diseases," Dr. Trudeau retired to the solitude of the Adirondack Mountains to die. Rest restored his health. Surprised and encouraged by the outcome, Trudeau launched the sanatorium movement in this country.

In 1904, Dr. Trudeau joined a small but dedicated group of physicians and laymen to form the National Tuberculosis Association. At about the same time, a Danish postal clerk, Einar Holboell, conceived the idea of selling a special stamp — the Christmas seal — to fund a hospital for children with tuberculosis. The idea spread to America in 1907. By 1910, the American Red Cross and the National Tuberculosis Association joined hands in a nationwide campaign: the Red Cross sold seals, and the Tuberculosis Association used the proceeds to finance the sanatorium movement.

The year 1912 marked the first recorded seal sale in South Carolina. Many were the initial difficulties. For example, when a group of volunteers inspected a potential site for a tuberculosis tent camp outside Columbia in 1913, they were threatened by a neighbor with a shotgun. They persevered. By 1917, the South Carolina Tuberculosis Association had been formed.

Public education was an early priority of the South Carolina Tuberculosis Association. In its first year, with only one staff member and quite limited funds, the Association launched a motion picture truck and attempted to cover the entire state. Other early projects included a case finding program, a tuberculin testing program, a high school chest clinic, and a campaign to arouse communities to recognize the need for public health nurses and health units.

By 1919, the income from the seal sale exceeded \$28,000, and the effects of local tuberculosis associations and committees had become tangible. Not until 1940, however, were enough beds available for all afflicted patients with tuberculosis. By that time, income from the Christmas seal campaign exceeded \$90,000 per year. The death rate from tuberculosis declined to 47 per 100,000 persons, and the new case rate to 40 per 100,000. By 1952 (the year that isoniazid was introduced), the death rate had fallen to 17 per 100,000, and the new case rate was 59 per 100,000. The apparent rise in cases over the rate for 1940 was due to improved case finding methods.

The Tuberculosis Association subsequently expanded its involvement to include all respiratory diseases. With tuberculosis declining, the present name, South Carolina Lung Association, was adopted in 1973. Professional, patient, and public education remains the key priority of the association. Additional funds are provided for community programs, research, and training.

Although the death rate for tuberculosis in South Carolina is now less than two per 100,000,

* Formerly Director of Tuberculosis Control, South Carolina Department of Health and Environmental Control.

** Director of Public Relations, South Carolina Lung Association, 1817 Gadsden Street, Columbia, S. C.

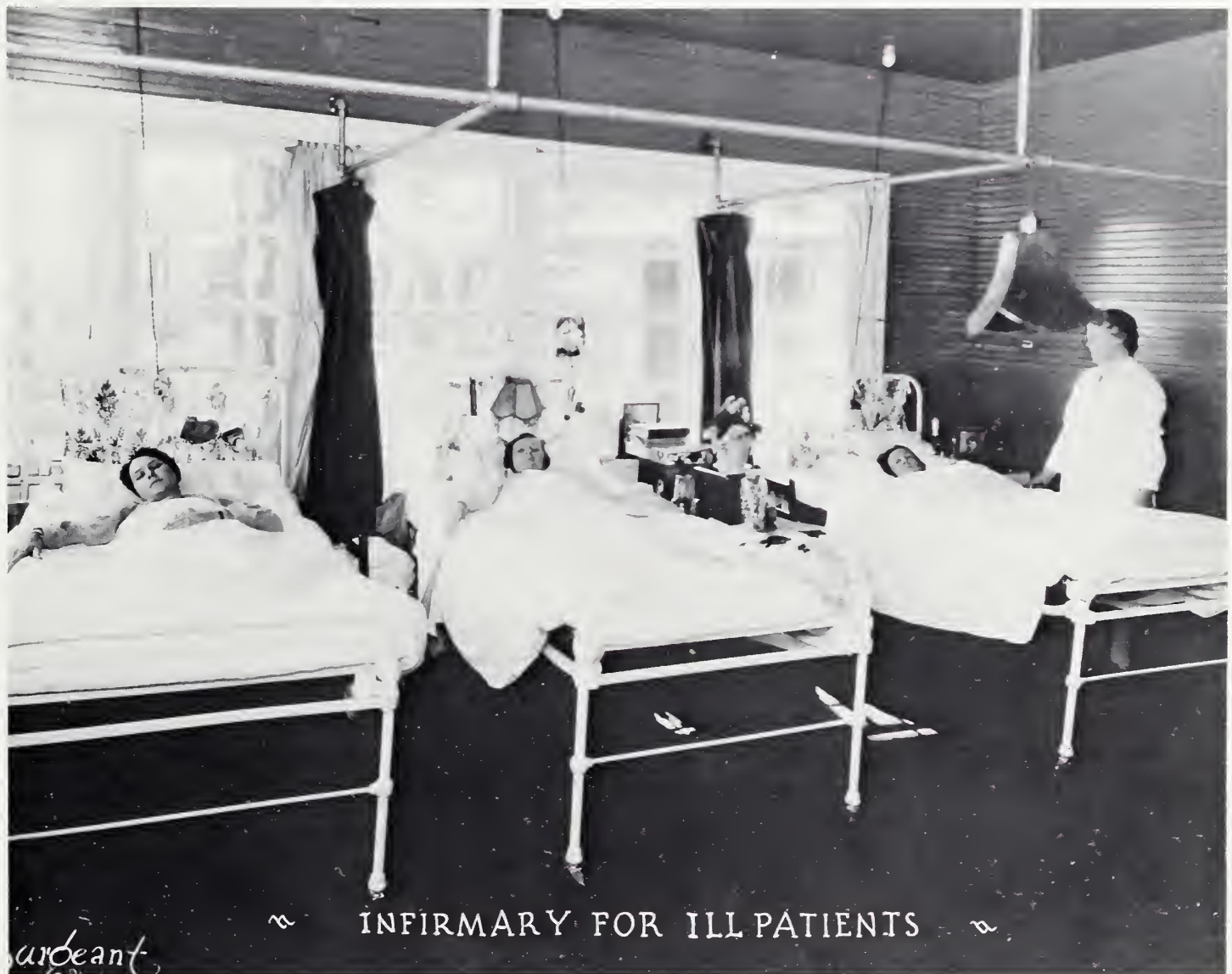
A CHRISTMAS SEAL MEMORY

and the case rate approximately 20 per 100,000, the Lung Association will not lay down its armor until tuberculosis has been eradicated. To demonstrate its continued concern, the Board of Directors of the Association recently adopted the following position in support of new trends in the care of patients with tuberculosis:

"... the Association supports development of new trends (of tuberculosis treatment and care) in South Carolina and believes that selected general hospitals should play an increasing role in care for patients with tuberculosis. The Association recognizes that establishment of new patterns for the care of these patients will require effort in many areas — including education for the public and for con-

cerned professionals alike. The Association stands ready to support these efforts which should result in better care for our citizens afflicted with this once dreaded — but now curable — disease of tuberculosis."

On March 13, 1977, the South Carolina Lung Association observed its 60th birthday. The glow of success in the fight against tuberculosis is shared by many groups, both public and private, but none is prouder of its contribution than the Lung Association. The battle against tuberculosis is almost won. With the same kind of volunteer support and concern, the next 60 years may hold success in the fight against other serious lung diseases. □



Rest, the mainstay for care of tuberculosis patients, became less important with the advent of chemotherapy.

TUBERCULOSIS CONTROL IN SOUTH CAROLINA

ERIC R. BRENNER, M.D.*

Tuberculosis remains a public health problem in South Carolina. During 1976, 589 new cases were reported to the Outpatient Clinic Division of the Bureau of Tuberculosis Services, and case rates in South Carolina have been among the highest in the nation for the past several years. (Table 1)

It is anticipated that between 550 and 600 cases will again be reported in 1977. Clearly, much remains to be done.

Although tuberculosis occurs in all segments of the population, case rates are higher in some "sub-populations" than in others. For example, case rates are higher in older than in younger individuals, in males than in females (2:1), and in blacks than in whites (5:1).

Approximately 90% of all the new cases of tuberculosis in South Carolina now occur by reactivation of dormant infection (infection acquired in the remote past). This conclusion is evident upon relating to one another the following four facts:

1. The population of South Carolina and the number of tuberculosis cases occurring in a year are known.
2. Approximately 8% of the population of the state is infected with living tubercle bacilli. This is known by the results of over 80,000 tuberculin skin tests performed last year in local county health departments.
3. Each new case of tuberculosis will, on the average, be the source of two new infections. (New infections having occurred in individuals who have just converted from a negative to a positive tuberculin status.)
4. About 5% of individuals newly infected with tubercle bacilli will develop detectable clinical disease within a year of their infection.¹

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Table I

<u>Year</u>	<u>Cases</u>	<u>Case Rate*</u>	<u>National Rank By Case Rate</u>
1932	1,368	78.7	
1952	1,251	59.1	
1966	690	26.7	21
1967	716	26.9	14
1968	651	24.2	16
1969	630	23.4	12
1970	618	23.9	10
1971	669	25.5	4
1972	651	24.4	4
1973	619	22.7	3
1974	641	23.0	3
1975	627	22.3	5
1976	589	20.9	**

* New Cases/100,000 Population

** Data Not Available

From these four pieces of information, the dynamics of tuberculosis in South Carolina can be summarized (Figure 1) in terms of the natural history of the disease.

A typical new case of tuberculosis might arise in an individual born in the 1920's, infected in the 1930's and free of symptoms for 40 years until he developed disease and became a case in the 1970's. The only detectable sign of infection in this individual, prior to his becoming a case, was most likely his ability to show a positive reaction to tuberculin. Indeed, the central role of tuberculin skin testing in detecting those individuals who are at lifelong risk of becoming cases of tuberculosis may be appreciated from the fact that most individuals with positive skin tests have normal chest X-rays.²

What are the goals of our tuberculosis control program? The long range goal, of course, is the elimination of tuberculosis as a public health problem in South Carolina. There are three desiderata:

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1. *All cases of tuberculosis should be reported to the Bureau of Tuberculosis Services.* Prompt reporting of cases by physicians, clinics, and laboratories is not only required by law, but it greatly facilitates the subsequent contact investigation carried out by county health departments.
2. *All infectious patients must quickly be rendered non-infectious.* In earlier times, of course, this was largely accomplished through the *physical* isolation of tuberculosis patients in sanatoriums. Nowadays, this is accomplished through the *chemo-therapeutic* isolation of the patient from susceptible individuals. Since a patient with pulmonary tuberculosis is quickly rendered non-infectious by appropriate antituberculosis drugs,³ these drugs are important not only to the patient but to the community. Thus, the therapeutic and the public health measures that center about an individual case are *identical*. This is in contrast with certain other infectious diseases, such as rabies or rocky mountain spotted fever, in which the therapeutic and the

public health measures are very *different*.

3. *Individuals who are infected without disease must be identified by tuberculin skin testing.* In practice, finding all 250,000 infected individuals in this state is not possible, nor would treating every single one of them with prophylactic INH be necessary or desirable. (See the article by Drs. Farer and Glassroth elsewhere in this issue for details on the subject of INH chemoprophylaxis.) What is possible is to identify some, or even many, of these quarter million individuals who are at high risk of becoming cases themselves. One group of such individuals is that of the recently infected. Most of these will be identified through the routine contact investigations mentioned above. Others may be found through the periodic skin testing programs which should be carried out routinely for employees and residents of certain types of institutions: such as hospitals, prisons, nursing homes, and mental institutions.

Other individuals at risk may be identified through tuberculin screening of

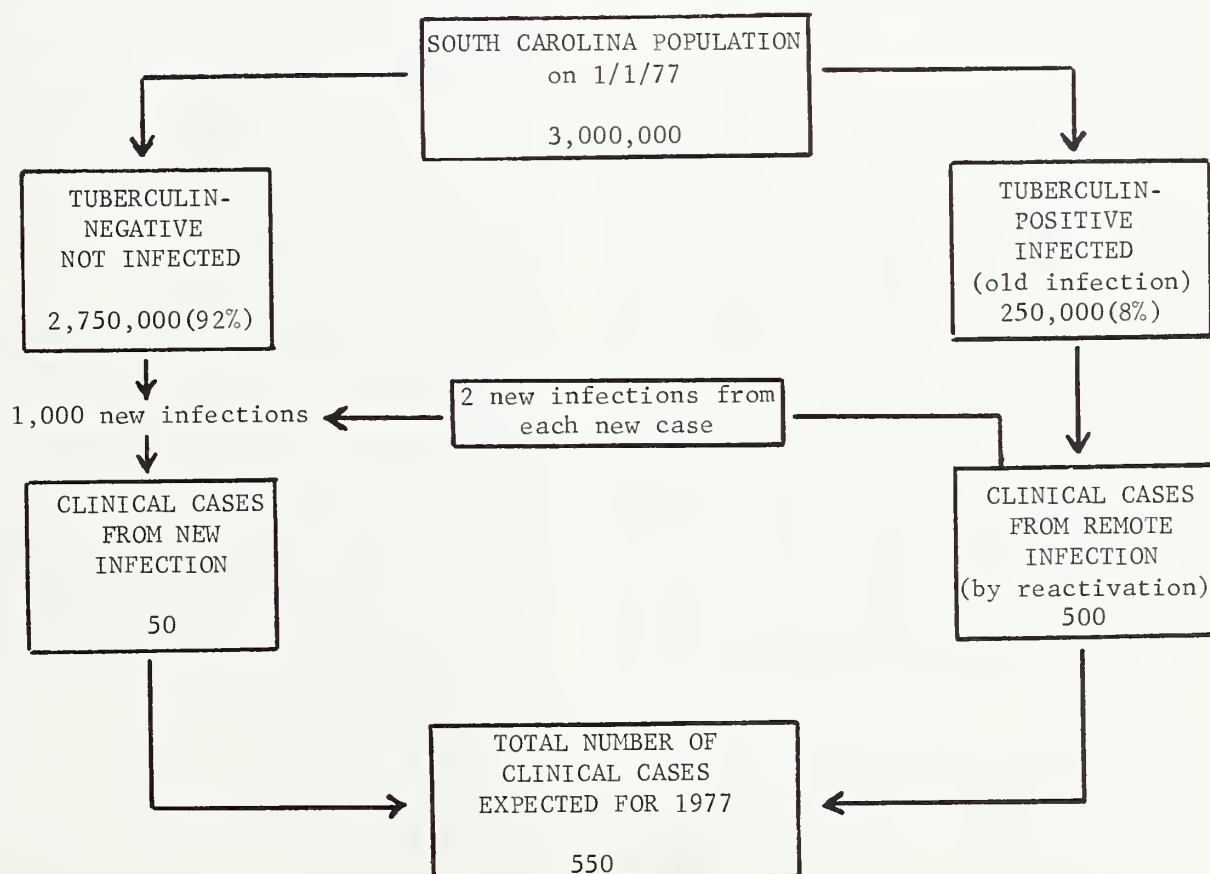


Figure 1. DYNAMICS OF TUBERCULOSIS IN SOUTH CAROLINA
Note that most new clinical cases come by reactivation of old infection, and that each new case causes an average of two new infections (figures are approximate, for clarity)

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groups such as one year olds at the time of their routine immunizations, of pregnant women at the time of their initial pre-natal visit, and so forth. Practicing physicians may also profitably screen patients whose tuberculin status is not known when they are seen for annual check-ups, or hospitalized for *any* reason. *It bears repeating that when screening an individual for tuberculosis infection, the tuberculin test is both cheaper and more reliable than the chest X-ray.* (The PPD should well join its initialed cousins CBC, VDRL, and EKG on routine admission order sheets!)

What is known about how new cases of tuberculosis receive their care? The approximate pattern for initial hospitalization of new cases in South Carolina is given in Table 2.

TABLE II

<u>Site of Hospitalization</u>	<u>% of New Tuberculosis Cases</u>
State Park	50
Other Hospitals	35
Never Hospitalized	15

The fact that 50% of the patients are already receiving their hospital care in either local general hospitals, or entirely on an ambulatory basis, represents a new and increasing trend in this state. As it has elsewhere,⁴ this trend is expected to continue.

Most tuberculosis patients, however, are not in the hospital. Inasmuch as about 600 cases are now being reported each year, and since treatment is generally carried out for about two years, this means that approximately 1200 individuals in the state are currently under treatment. At any one time, 1100 of these—over 90%—are at

home. Thus, the system of care for tuberculosis today is mainly an outpatient system. A majority of these outpatients receive all or part of their care through one of the 46 county health departments in the state. The counties, working within 13 DHEC districts, provide for medications, skin tests, chest X-rays, analysis of sputum samples, evaluation clinics, investigation of contacts, and INH prophylaxis where indicated.

The state “tuberculosis control” office, located on the State Park campus in Columbia, has a full-time staff which backs up these local clinic-based activities. This central office maintains a registry of tuberculosis patients in the state, keeps statistics, tracks patients as they move from hospital back to the community, from county to county, or even from state to state, and makes available consultation on all aspects of tuberculosis to any private practitioner, hospital or medical society.

SUMMARY

Tuberculosis remains a public health problem in South Carolina. Effective measures of tuberculosis control include (1) the application of modern chemotherapeutic regimes, (2) intensive investigation of the contacts of every case of tuberculosis, (3) widespread use of tuberculin testing to detect individuals who are candidates for INH prophylaxis, and (4) close coordination and exchange of information about all tuberculosis patients between practitioners and the Bureau of Tuberculosis Services. □

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PREVENTIVE TREATMENT OF TUBERCULOUS INFECTION

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Approximately 15 million Americans are infected with tubercle bacilli. Most of these individuals are well and will never develop clinical disease, but with time some of them become ill with tuberculosis. It is from this pool of already infected individuals that about 90 percent of the cases of clinical tuberculosis comes each year.

IDENTIFYING THE TUBERCULOUS INFECTED

The Mantoux skin test using 5 tuberculin units (TU) of Tween® stabilized purified protein derivative (PPD) can identify infection with *M. tuberculosis*. Most infected people will respond to a 5 TU test with ≥ 10 mm of induration by 10 weeks following initial infection.¹ Although false negative reactions and cross reactions caused by sensitization with other mycobacteria do occur, the tuberculin skin test, when properly applied and interpreted, is the best available test for identifying the tuberculous infected. A decision on who should be skin tested and how frequently to repeat tests generally depends on the risk of exposure and the prevalence of tuberculosis in a

population group or community. Multiple puncture skin tests should be considered only as screening procedures and "positive" results should generally be confirmed by a Mantoux Test.¹

WHAT CAN BE DONE TO DECREASE THE FREQUENCY OF NEW CASES OF TUBERCULOSIS AMONG INFECTED PERSONS?

Isoniazid (INH), which was introduced as a chemotherapeutic agent in 1952, has been shown to be highly effective when used as a preventive agent.²

Controlled trials have demonstrated a consistent reduction of cases in treated groups of infected persons. The protective effect continued for many years following the year of preventive therapy. Although not 100 percent effective, INH can prevent clinical tuberculosis in the majority of infected persons who take it as prescribed.

CAN ISONIAZID PREVENT INFECTION?

Studies in guinea pigs and humans provide some indication that INH treatment of uninfected animals or persons (chemoprophylaxis) may reduce the frequency of new infection. Only in unusual circumstances, however, such as when there is high risk of infection for a relatively

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short time, would the use of isoniazid to prevent infection appear to merit consideration. In such situations, the protective effect of the drug is derived *only* while it is being taken.

IS ISONIAZID RESISTANCE A PROBLEM IN TREATED INFECTED PERSONS WHO LATER DEVELOP TUBERCULOSIS?

The possibility that preventive treatment with isoniazid might result in the emergence and spread of isoniazid-resistant strains of tubercle bacilli was at one time of concern. On theoretical grounds, this was not likely because of the low frequency of INH-resistant mutants in the small bacterial populations present in persons receiving preventive treatment. Experience has shown that INH resistance is not a problem in treating preventive therapy failures.

FOR WHOM IS PREVENTIVE THERAPY RECOMMENDED?³

Though each individual who is infected with *M. tuberculosis* is at some risk of developing tuberculous illness, it is not practical to test and treat the entire population of positive reactors. In addition, the risk of adverse reactions must be weighed against the potential benefits from the drug. An individualized decision on preventive therapy must be made for each patient based on factors such as the estimated risk of developing clinical disease, the opportunity for infecting others (especially children), and the patient's motivation.

The following are groups for whom isoniazid is recommended:

1. *Household Members and Other Close Associates.* Household members and other close associates of patients with newly discovered tuberculous disease are at high risk of being recently infected and of developing disease. Contacts with Mantoux tuberculin skin test readings of 5mm or more should receive preventive therapy, since in this group such reactions are likely to be due to infection with *M. tuberculosis*.

Some contacts with negative tuberculin skin test reactions should be considered for preventive therapy. At highest risk are children who are contacts of bacteriologically positive patients and who may be infected but may not yet have converted their tuberculin skin test. These children should receive preventive therapy for three months and then be skin tested again. If positive,

therapy should be continued for a total period of 12 months; if negative, and exposure has ended, therapy may be discontinued. For adult contacts with negative tuberculin skin test reactions, factors such as the state of infectiousness of the source case and the risk of drug side effects should be considered when prescribing preventive therapy. If therapy is not prescribed, the tuberculin skin test should be repeated in three months and therapy prescribed at that time if conversion has occurred.

2. *Positive Tuberculin Skin Test Reactor with Abnormal Chest Roentgenogram.* Persons with past tuberculous disease not previously treated by adequate chemotherapy and tuberculin skin test reactors with roentgenographic findings consistent with nonprogressive tuberculous disease should receive preventive therapy.

3. *Newly Infected Persons.* The term "newly infected persons" should be applied only to those who have had a tuberculin skin test conversion within the past two years.

A converter should be defined as a person whose tuberculin skin test reaction has increased by at least 6mm from less than 10mm induration to greater than 10mm.

4. *Special Clinical Situations.* To a varying degree, the following situations increase the risk of developing tuberculous disease and may require preventive therapy in the infected: (a) prolonged therapy with adrenocorticoids, (b) immunosuppressive therapy, (c) some hematologic and reticulo-endothelial diseases, such as leukemia or Hodgkin's disease, (d) diabetes mellitus, (e) silicosis, and (f) after gastrectomy.

5. *Other Positive Reactors.* Persons less than 35 years of age who are positive tuberculin reactors should receive preventive therapy even in the absence of additional risk factors. Positive tuberculin reactors with no other risk factors who are 35 years and more, are not, as a group, routinely recommended for preventive therapy. The clinician must carefully weigh the risk of adverse reactions against the consequences of the individual developing clinical disease. For example, a nurse in a newborn nursery might receive high priority for preventive therapy regardless of age.

FOR WHOM IS ISONIAZID CONTRAINDICATED?

Isoniazid preventive therapy is contraindicated for persons with a history of previous

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isoniazid associated hepatic injury or allergic reactions and with acute liver disease of any etiology.

Other groups for whom preventive therapy is not contraindicated but for whom special attention is urged are: pregnant women, for whom preventive therapy should generally be deferred until delivery; persons currently using any other medication on a long-term basis; persons taking phenytoin (diphenylhydantoin); persons consuming alcohol daily; and persons with chronic liver disease.

WHAT ARE THE COMPLICATIONS OF PREVENTIVE TREATMENT?

Adverse reactions are uncommon among healthy persons receiving isoniazid for treatment of tuberculous infection. Those that do occur tend to appear more frequently with increasing age.

Gastrointestinal distress and rash are the most common complaints. Neurologic complaints are less frequent. Pyridoxine (Vitamin B6) prevents the uncommon peripheral neuropathy, but is usually only prescribed for alcoholics, malnourished individuals and others with a predisposition to neuropathy.

Investigations indicate that isoniazid does not increase the frequency of convulsive episodes in epileptics. On the contrary, because of competition for metabolic pathways, anticonvulsant medication dosage may have to be reduced. Studies have also failed to produce evidence that isoniazid decreases mental activity, depresses hemoglobin values, unfavorably affects the outcome of pregnancy, or is associated with increased cancer mortality.

Although liver disease can occur in patients receiving isoniazid, the risk appears to be small. The predominant factor that is associated with increased risk of liver disease among patients receiving isoniazid is age. Progressive liver damage is observed rarely under 20 years of age, up to 0.3% at ages 20-34 years, up to 1.2% at 35-49 years, and in approximately 1.7% of individuals 50 years and over. Daily use of alcohol may also increase the risk.⁴ Liver disease can occur at any time during the course of therapy. Available data suggest that illness occurring early in the course of therapy tends to be mild. If the drug is discontinued when signs or symptoms of liver dysfunction are noted, the adverse reaction is generally reversible, usually within several weeks.

Hepatic dysfunction is reported more frequently than it was in previous years. The temporal and geographic variations in the frequency of such dysfunction do not appear related to changes in the product itself, nor to the brand, manufacturing process, or packaging. Differences in the characteristics of the groups to whom isoniazid is administered and/or differences in detection of patients with liver disease may account for some of the variability. Complicating this situation is the fact that 10 percent to 20 percent of persons receiving isoniazid will experience some elevations of their hepatic enzymes while taking the drug. These abnormalities usually resolve without discontinuing the drug and are unaccompanied by symptoms. The mechanism underlying hepatic dysfunction related to isoniazid is still poorly understood.

It must be remembered that the chance of developing isoniazid-associated liver disease or other adverse reactions is present only during the time preventive therapy is taken, whereas the risk of developing tuberculous illness lasts a lifetime.

HOW SHOULD PREVENTIVE THERAPY BE MANAGED?

Before deciding that a person is eligible for preventive therapy, the presence of clinically progressive disease must be ruled out since this is an indication for multiple-drug therapy. To rule out progressive disease, all positive reactors should have a chest film. If abnormalities consistent with pulmonary tuberculosis are found, then further work-up including medical evaluation, bacteriologic studies, and review of available prior chest roentgenograms should be performed until it is certain that progressive tuberculosis is not present.

The patient should be questioned for a history of prior adverse reaction to isoniazid, prior adequate course of the drug, or symptoms consistent with current liver disease. Other drugs (including alcohol) which might interact with isoniazid should be noted.

Patients (or parents of children) should then be instructed in the need for taking their medication. They should also be apprised of the signs and symptoms of hepatotoxicity and instructed to report for evaluation should these appear during the course of therapy.

Isoniazid is then prescribed in a dose of 300 mg per day for adults and 10 mg/kg not to exceed 300

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mg per day for children. The drug is administered in a single daily dose.

Patients should be scheduled to return at monthly intervals to refill their prescriptions. At these visits they should be evaluated for signs or symptoms of adverse reactions. Routine monitoring of liver function tests is not useful. Such studies should be obtained, however, when evaluating cases of possible hepatotoxicity.

FOR HOW LONG SHOULD PREVENTIVE THERAPY BE GIVEN?

The currently recommended duration of preventive therapy is one year. A study being conducted in eastern Europe has provided data which indicate that six months of isoniazid also produces a substantial reduction in the number of cases of clinical tuberculosis. However, the reduction is not as great as that produced by 12 months of therapy. It therefore appears that 12 months of medication remains the optimum duration but that shorter durations do confer some benefit.

There is no evidence that more than one year of medication provides any additional benefit.

DISCHARGE OF PATIENTS FOLLOWING PREVENTIVE TREATMENT

After successful completion of the assigned course of treatment, the patient may be dis-

charged from followup. No further routine evaluations are indicated. The patient should be instructed to seek assistance if signs or symptoms suggesting tuberculosis subsequently develop.

CONCLUSION

Isoniazid preventive treatment when combined with proper patient selection and supervision, is safe and highly effective. It is a major factor in tuberculosis control in the United States because it is a preventive health measure which benefits the infected person as well as a public health measure for the community. □

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TUBERCULOSIS IN THE COMMUNITY HOSPITAL: LESSONS FROM A SINGLE YEAR*

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SARA McVICKER, R.N.

INTRODUCTION

Tuberculosis challenges the community hospital as perhaps never before. That the former "captain of the men of death" is now both uncommon and treatable lulls us to forget that its course is usually chronic, its guises often subtle and atypical, its diagnosis frequently difficult, and its management multifaceted. Experience in this country^{1, 2} and abroad^{3, 4} documents the tendency for patients with untreated, sputum-positive disease to enter general hospitals unrecognized. Discovery of such occurrences may precipitate near-panic among employees.

Every community hospital should evaluate its resources for coping with tuberculosis.^{5, 6} Larger community hospitals will assume a major role in the management of this disease, but even the smallest hospital will have an occasional patient, usually admitted for another diagnosis. We describe one year's experience with tuberculosis surveillance in a 600-bed community hospital. Our purpose is to emphasize the lessons gained, and to suggest a comprehensive program for surveillance.

THE CENTRAL TUBERCULOSIS REGISTRY

In January 1976, the Infection Control Committee established a central tuberculosis registry

as suggested by MacGregor.¹ The nurse infection control coordinator makes regular rounds in the microbiology laboratory and enters into the registry each new patient with a positive microscopic examination ("smear") or culture for acid-fast bacilli (AFB). She contacts the ward (if the patient remains in the hospital) or the county Health Department (if the patient has been discharged) to collect clinical information and to verify follow-up. The hospital epidemiologist reviews each case and renders a decision regarding the need for contact investigation among exposed employees. Radiographic findings, whether the patient was in respiratory isolation, whether smears for AFB were positive, and whether *Mycobacterium tuberculosis* was proven by culture provide the framework for such decisions.

EPIDEMIOLOGY

Data generated by the microbiology laboratory form the basis for the central tuberculosis registry. The perspective on the local, regional, and national epidemiology of tuberculosis, seen from the laboratory at this hospital, is shown in Table I.

Of 39 patients entered into the registry during 1976, 23 had pulmonary tuberculosis. These included six patients who were not admitted to the hospital but rather referred directly to the State Park Health Center from the outpatient clinic or emergency room, one patient with known active tuberculosis (admitted for another illness), and

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TB IN THE COMMUNITY HOSPITAL

one patient with a probably-tuberculous (by histology and AFB smear) solitary pulmonary nodule which was not culture-proven. The remaining 15 patients (Table II) are discussed below.

Seven patients suspected of having pulmonary tuberculosis had positive AFB smears which were later concluded to have been false-positive (negative AFB cultures and no subsequent confirmatory evidence of tuberculosis). Two of these patients were transferred from this hospital to the State Park Health Center, from which they were subsequently discharged with the conclusion that tuberculosis was not present. An additional patient had a positive AFB smear on peritoneal fluid which may, in retrospect, have been false-positive.

Other diagnostic outcomes of patients entered into the registry included atypical mycobacterial infection of the lungs (three patients), tuberculous peripheral lymphadenitis (two patients), and miliary tuberculosis, tuberculous osteomyelitis of the spine, and mediastinal tuberculosis coexisting with carcinoma (one patient each).

PATIENTS WITH PREVIOUSLY-UNDIAGNOSED PULMONARY TUBERCULOSIS

Data from the 15 patients with previously un-

diagnosed, but subsequently culture-proven pulmonary tuberculosis who were admitted to this hospital during 1976 are summarized in Table II. Twelve of the 15 patients were male; the average age was 61.5 years (range 31 to 87). Several salient points emerge:

- (1) The admission diagnosis included tuberculosis as a possibility in only 5 of the 15 patients.
- (2) Respiratory isolation was instituted on admission in only two patients and was never instituted in seven patients.
- (3) The tuberculin skin test, while usually positive when done properly, was omitted in two patients and was done but results not recorded in another two patients. Advanced age was common to both of the patients with negative tuberculin test results (ages 70 and 75 years) and also to the patient with a 6mm, "doubtful" result (76 years).

As shown in Table II, tuberculosis was not mentioned in the discharge summary in six of the 15 patients. One patient (Case 3) had only a single colony of *M. tuberculosis* isolated from one culture specimen, and may have been an example of the rare but recently emphasized "false-positive culture."⁷ The chest x-rays of six patients who may be considered to have shown "subtle" or "atypical" presentations are shown in Figure 1.

TABLE I. PERSPECTIVES ON THE EPIDEMIOLOGY OF TUBERCULOSIS

YEAR	1973	1974	1975	1976
new cases in the United States	30,998	30,122	33,989*	32,549**
new cases in South Carolina	687	706	627	589
new cases in Richland County	64	75	80	72
new culture-proven cases at Richland Memorial Hospital	18	17	13	24

* In January 1975 the reporting system was changed to include reactivation cases among the new cases

**Provisional totals

TB IN THE COMMUNITY HOSPITAL

IMPORTANCE OF FINDING OF A CAVITY ON CHEST X-RAY

Analysis of the data shown in Table II reveals that the presence or absence of a cavity, as determined by the radiologist from the plain chest x-rays, correlated with the effectiveness of diagnostic and therapeutic procedures.

Seven patients had a cavity on plain chest x-ray. Of these, all but one had a positive AFB smear, all but one were suspected of tuberculosis on admission, and all but one were placed in respiratory isolation. The single exception to each of these categories was a cachectic, elderly man (Case 12; Figure 1-F) in whom there was great difficulty obtaining sputum samples. He became hypotensive when fiberoptic bronchoscopy was attempted, causing the procedure to be terminated. Ultimately, he expired.

There were eight patients without an apparent cavity on the plain chest x-ray. Of these, only one had a positive AFB smear, only one was suspected of having tuberculosis on admission, and only one was placed in respiratory isolation. The one patient with a positive AFB smear (Case 11; Figure 1-D) presented with hemoptysis and had

the material for AFB smear obtained by fiberoptic bronchoscopy.

TUBERCULIN SKIN TESTING OF HOSPITAL EMPLOYEES

Surveillance of hospital employees by annual tuberculin skin testing was begun at this hospital in May 1975 (previously, surveillance had been based on chest x-rays). By January 1976, the tuberculin status (defined as either a known positive test, or documented test result within the previous 12 months) was known for only 55 percent of the employees. By means of an intensive campaign, the tuberculin status was known for 92 percent of employees by the end of the calendar year. During the last six month period of 1976, 4.5 percent of employees tested were found to have converted their tuberculin status from negative to positive.

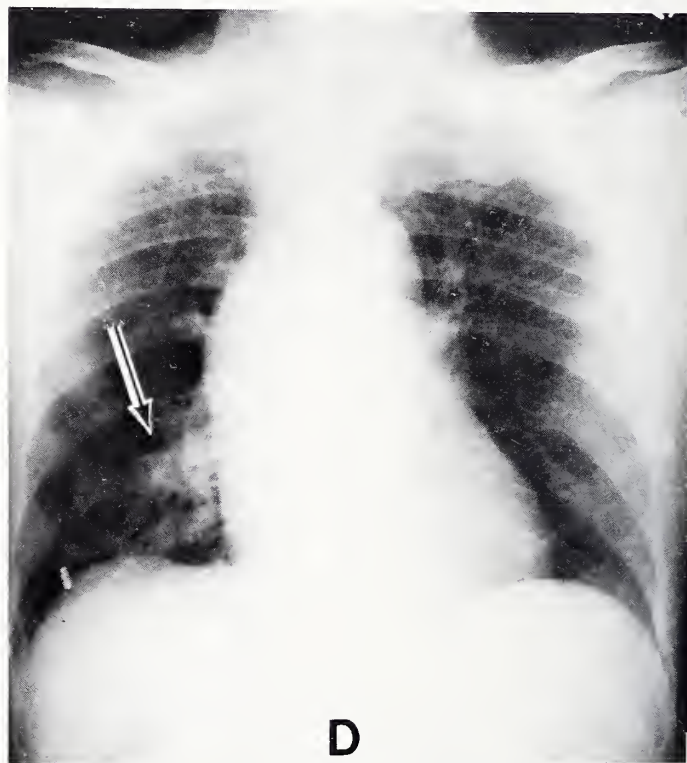
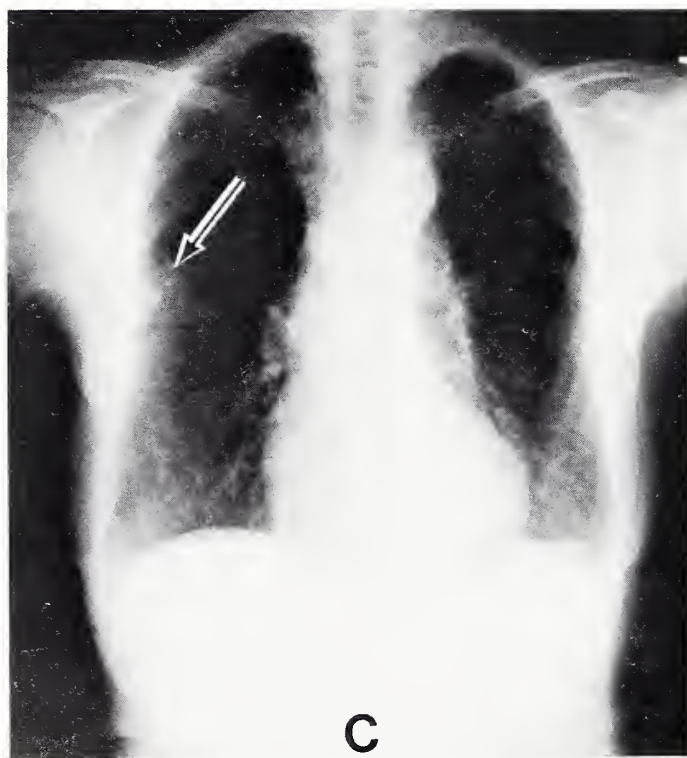
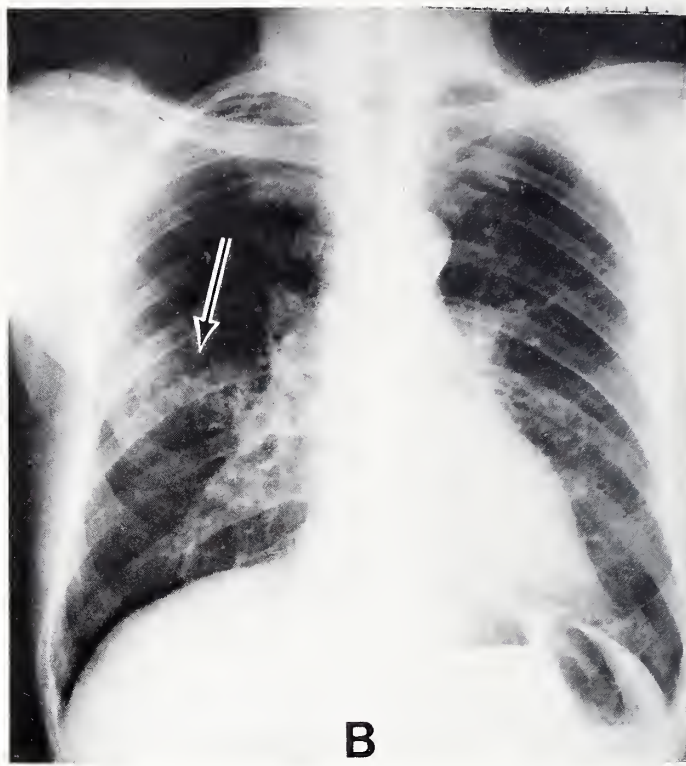
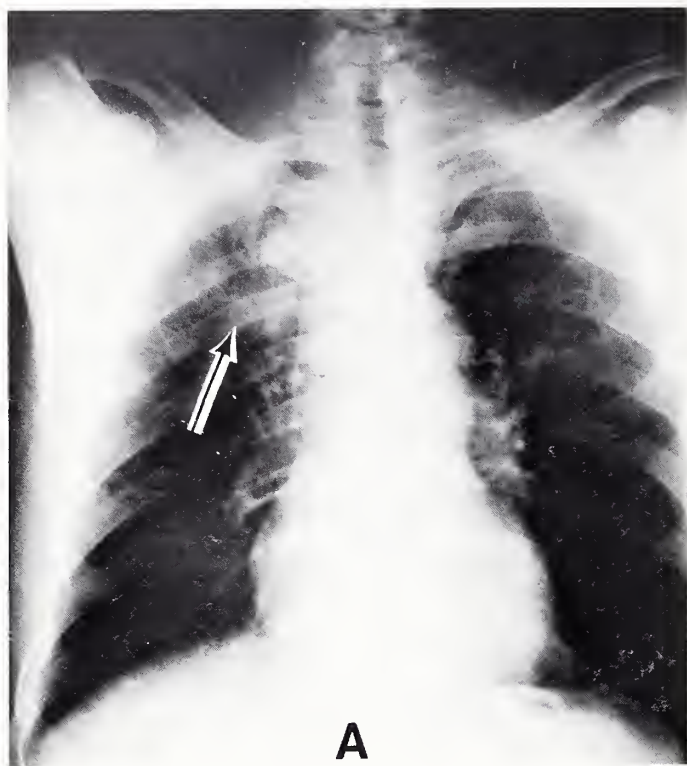
TUBERCULIN SKIN TESTING OF HOSPITAL PATIENTS

The proficiency of tuberculin skin testing by the nursing staff, as a screening test for tuber-

TABLE II: CLINICAL FEATURES OF 15 PATIENTS WITH PREVIOUSLY-UNDIAGNOSED, CULTURE-PROVEN PULMONARY TUBERCULOSIS WHO WERE ADMITTED TO RICHLAND MEMORIAL HOSPITAL, 1976

PATIENT	CAVITY ON CHEST X-RAY?	TUBERCULOSIS MENTIONED IN DIAGNOSIS?	RESPIRATORY ISOLATION INSTITUTED? (hospital day)	TUBERCULIN SKIN TEST RESULT?	POSITIVE AFB SMEAR?	THERAPY FOR TUBERCULOSIS INSTITUTED?
1	Yes	at discharge	day 4	negative*	Yes	at discharge**
2	Yes	at discharge	day 13	positive	Yes	in hospital
3	No	never	never	not done	No	never***
4	No	never	never	positive*	No	later****
5	No	on admission	day 3	_____*****	No	at discharge
6	Yes	on admission	day 3	not recorded	Yes	at discharge **
7	No	at discharge	never	positive*	No	at discharge
8	Yes	on admission	day 2	positive	Yes	in hospital
9	Yes	on admission	admission	positive	Yes	at discharge
10	Yes	at discharge	admission	positive	Yes	in hospital***
11	No	on admission	day 4	positive*	Yes	at discharge**
12	Yes	never	never	doubtful	No	never***
13	No	never	never	not read	No	later****
14	No	never	never	not done	No	later****
15	No	never	never	negative*	not done	never***

NOTES: * test stated to be "positive" or "negative" in hospital record, but not recorded in millimeters of induration
** transferred at discharge to the State Park Health Center
*** died during hospitalization
**** on basis of positive culture for M. tuberculosis (reported after discharge)
***** tuberculin skin test previously known to be positive



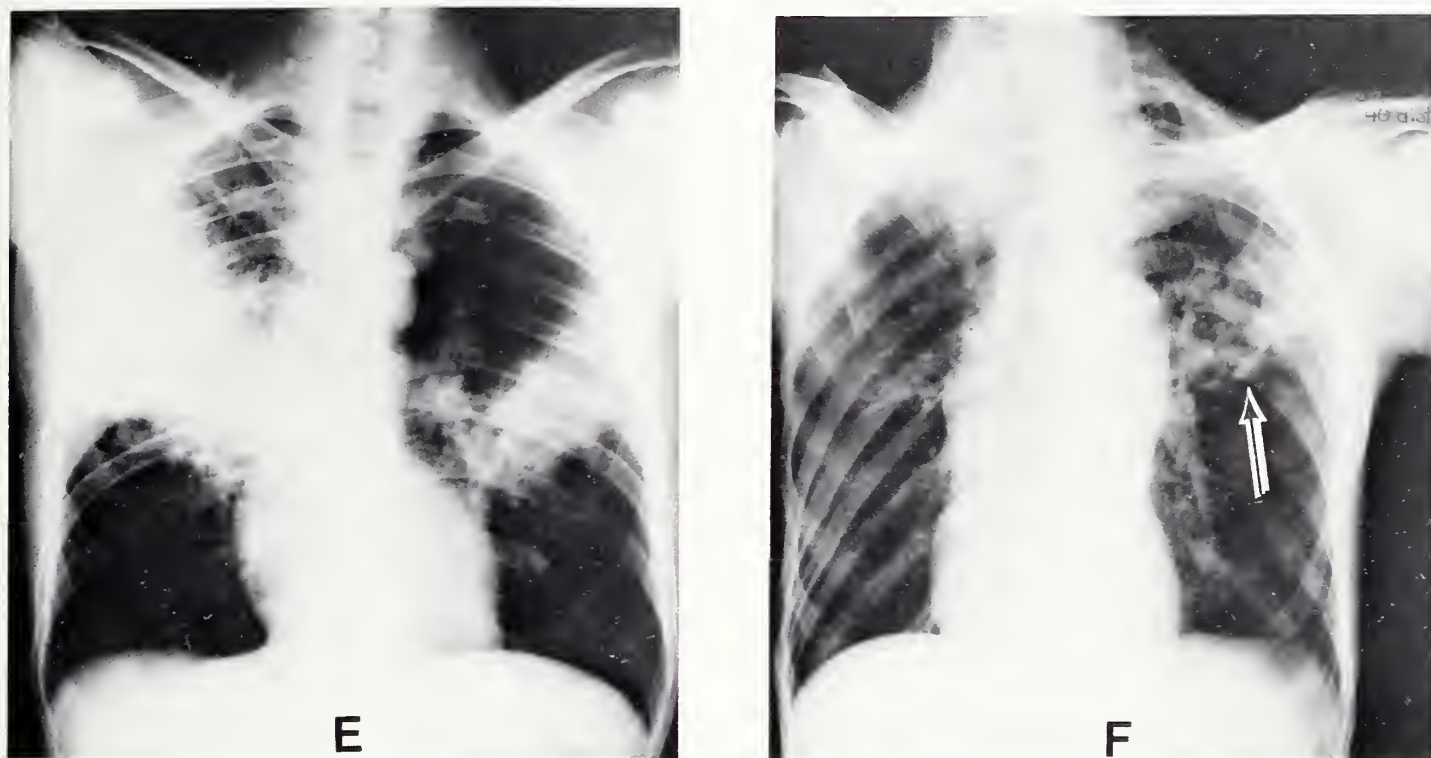


FIGURE 1. CHEST X-RAYS OF PATIENTS WITH PREVIOUSLY-UNDIAGNOSED TUBERCULOSIS WITH "SUBTLE" OR "ATYPICAL" PRESENTATIONS.

With reference to Table II, the clinical presentations were as follows:

- A (Case 4): Admitted and discharged with the diagnosis of slowly-resolving right upper lobe pneumonia. Therapy later instituted on the basis of positive culture from bronchoscopy.
- B (Case 14): Admitted and discharged with the diagnoses of anemia and weight loss of undetermined etiology. Therapy later instituted on the basis of positive culture.
- C (Case 13): Admitted and discharged with the diagnoses of bronchitis and weight loss. Therapy later instituted on the basis of positive culture.
- D (Case 11): Admitted with hemoptysis and right lower lobe infiltrate. Fiberoptic bronchoscopy led to diagnosis based on positive AFB smear from bronchial washings.
- E (Case 10): Although tuberculosis was suspected on admission, there was difficulty obtaining satisfactory sputum samples. Post mortem examination disclosed diffuse tuberculous pneumonia.
- F (Case 12): Although tuberculosis was considered on admission, the patient expired without treatment. This was the only patient (Table II) with cavities apparent on plain chest x-ray who was AFB-smear negative.

TB IN THE COMMUNITY HOSPITAL

culosis ordered by physicians for hospitalized patients, was studied prospectively during a one week period. There were 21 patients for whom the standard tuberculin antigen (APLISOL) was ordered from the pharmacy. There was evidence that the test was administered in 20 of the 21 patients. However, record of the test result between 48 and 72 hours after administration could be found, in the nursing notes, in only 2 of the 21 patients. In no instance was the result properly recorded as millimeters of induration. Efforts to correct this obvious deficiency in tuberculin testing were begun.

DISCUSSION

Lessons learned and re-learned from the present experience include the following:

- (1) Patients with active pulmonary tuberculosis are now, typically, admitted to the hospital for another reason, unsuspected of having the disease, and therefore not placed on respiratory isolation.
- (2) Exposure to tuberculosis is still a hazard for those who work in hospitals. A vigorous employee health surveillance program remains essential.⁸
- (3) The traditional AFB smear has serious limita-

tions, especially in patients without cavities on chest x-rays. False-positive smears may represent an increasing problem, and cause undue alarm and even extended hospitalization.⁹ There is a need to be more selective about the use of AFB smears.

(4) Diagnosis of tuberculosis is difficult in many patients, due in large part to subtle presentations of the disease. This problem may be resolved in part by placing less reliance on AFB smears of expectorated sputum, and greater reliance on findings from bronchoscopy.

(5) The tuberculin skin test is frequently carried out improperly.

Although many of the findings from this study could be anticipated from the experience elsewhere,^{1, 4} a point which we feel should be emphasized is the presence or absence of cavitary disease on plain x-rays of the chest. In this series, delayed suspicion of tuberculosis and failure to institute respiratory isolation occurred mainly in patients without obvious cavities. In none of these patients were acid-fast bacilli found on microscopic examination of expectorated sputum. The sputum-producing, smear-positive patient is considered to be the major vector for continued transmission of tuberculosis.

TABLE III: COMPONENTS OF A COMMUNITY HOSPITAL TUBERCULOSIS CONTROL PROGRAM

COMPONENT	RESPONSIBILITIES
Hospital Administration and Board of Trustees	Make available the physical and human resources necessary to carry out an active infection control program.
Nurse Infection Control Coordinator	Maintains central tuberculosis registry, based on positive acid-fast bacillus (AFB) smears and cultures. Coordinates contact investigation among employees (with employee health nurse), and verifies follow-up (with health department).
Hospital Epidemiologist (or Chairman of Infection Control Committee)	Makes decisions regarding need for contact investigation among employees. Reviews each proven case, and with nurse infection control coordinator, reviews adequacies of policies.
Employee Health Nurse	Maintains regular skin test records of all employees. Assists in contact investigation among exposed employees.
Pathology Department	Maintains microbiologic support for diagnosis of tuberculosis.
Admitting Office	Assures private room for patients with suspected active pulmonary tuberculosis.
Radiology Department	Maintains alertness for new cases of cavitary pulmonary disease; alerts physician of possible need for respiratory isolation.

TB IN THE COMMUNITY HOSPITAL

Each new case of tuberculosis tends to be viewed as an anachronism, something which will not be seen again — yet the disease continues to occur, usually unexpectedly. We propose a clear-cut division of responsibilities for surveillance (Table III). This program has already helped allay fear among hospital personnel and assisted other segments of the health care delivery system in the follow-up care of individual patients.

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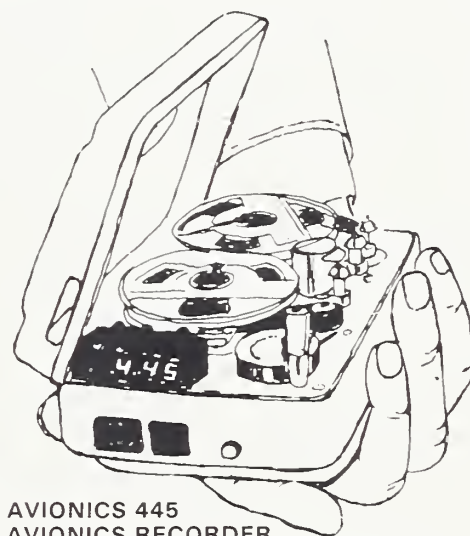
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THE ROLE OF THE STATE LABORATORY IN TUBERCULOSIS CONTROL

HAROLD DOWDA, JR., PH.D.*
ARTHUR F. DiSALVO, M.D.*

The role of the Mycobacteriology Section, Division of Diagnostic Microbiology, Bureau of Laboratories, South Carolina Department of Health and Environmental Control is to provide all laboratory support to the Bureau of Tuberculosis Services and to private physicians in the State. The Mycobacteriology Section has traditionally been one of the strongest in the United States. The Section has the necessary expertise to isolate and identify all of the mycobacteria encountered in clinical practice. Where indicated, drug susceptibility tests can also be performed.

The Mycobacteriology Section receives some 13,500 specimens and referred cultures each year. This figure has remained relatively constant over the last five years. About half of the specimens received are from the State Park Health Center with an increasing number from private physicians each year. Despite the relatively stable number of specimens, there has been a steady increase in the number of specimens yielding *Mycobacterium tuberculosis*. For instance, in 1975 there were 13,669 specimens processed by the Mycobacteriology Section with 1,798 isolations of *M. tuberculosis*. During 1976, 13,733 specimens were processed, yielding 2,226 isolates of *M. tuberculosis*. These data indicate that there was an increase of 24% in the number of isolates of *M. tuberculosis* from 1975 to 1976. This increase could be due to better laboratory techniques, more selection in culture submission, an increase in the actual number of cases, better detection of existing cases by Tuberculosis Control, or a combination of any of these factors.

When a specimen is received it is concentrated, a portion of the concentrate is inoculated onto growth medium and a portion is smeared

onto glass slides for staining. Evaluations of stain material are usually available the day after the specimen is received in the laboratory and emergency stains can be done the day the specimen is received. In 1975, the Mycobacteriology Section adopted the technique for microscopic examination of inoculated 7H10 plates for the early detection of *M. tuberculosis*. After 7 to 10 days incubation, microcolonies of *M. tuberculosis* appear which can be identified by their serpentine cording type of growth. Since it normally takes six to eight weeks for a macrocolony to develop, the microcolony method reduces the time needed for a presumptive identification of *M. tuberculosis* by approximately 80%. The technique also permits the early detection of the atypical mycobacteria.

In no event are negative reports issued before the specimen has been incubated and examined for eight weeks unless the media is liquefied or overgrown by contaminating organisms. When contamination occurs, the report slips are so marked.

The role of the laboratory is not limited to the isolation and identification of *M. tuberculosis*. Each year approximately 400 mycobacteria other than *M. tuberculosis* are isolated and identified. This number represents 14 to 16% of the number of isolates of mycobacterium that are usually encountered during the year. The frequency of atypical mycobacteria isolated by Fiscal Year is summarized in Table I. Some of these are natural contaminants and not generally considered pathogenic for man. Some, such as *M. kansasii* and *M. intracellulare* are pathogens and can present serious problems in therapy. For this reason it is important to have available a reference laboratory which can completely and correctly speciate these organisms and perform susceptibility tests.

In those States where the incidence of tuberculosis has decreased markedly, there has been a

(Continued on page 279)

* Bureau of Laboratories, S. C. Department of Health and Environmental Control, 2600 Bull Street, Columbia, South Carolina 29201.

ROLE OF THE STATE LABORATORY
TABLE I
ATYPICAL MYCOBACTERIA ISOLATED

Fiscal Year	I	II	III	IV	TOTAL
73	3 (.2)*	123 (11.3)	311 (28.3)	23 (2.1)	460
74	0 (0)	97 (9.4)	273 (26.5)	19 (1.9)	389
75	0 (0)	56 (2.6)	275 (12.6)	45 (2.1)	376
76	5 (.1)	17 (.9)	341 (13.1)	10 (.3)	373

Group I strains are generally pathogenic

Group II contains both pathogenic and non-pathogenic strains

Groups III and IV are generally non-pathogenic but Group III contains the clinically significant Battey complex

*Percent of total mycobacterial isolates in the various groups of atypicals

tendency to decentralize the hospitalization of tuberculosis patients. Since the bacteriology of this disease is more sophisticated and more hazardous than the bacteriology normally encountered in routine clinical laboratories, the competency of the hospital laboratory must be clearly established. This is essential to prevent nosocomial spread of *M. tuberculosis* to the technical and general hospital personnel as well as to the other patients in the hospital.

Recent work from the CDC has suggested standardized levels of mycobacteriology laboratory services to be offered by various facilities and has assigned number rankings as follows:

- Level I* Specimens are collected and smears made, stained, and reported. Specimens are not concentrated. A portion of the specimen is then forwarded to a Level II or III Laboratory for further work.
- Level II* Laboratories at this level collect specimens, concentrate the material, make smears and inoculate media for the isolation of mycobacteria. These laboratories should be able to speciate the *M. tuberculosis*

– *M. bovis* group and to place other mycobacteria into their appropriate groups. Atypical mycobacteria are referred to a Level III laboratory for further work and complete speciation.

Level III Facilities in this group are capable of all the activities needed for the identification of all groups of mycobacteria and can perform drug susceptibility studies.

In South Carolina, most hospitals and clinics are encompassed by Level I, offering basic presumptive data for the diagnosis of tuberculosis. There are a few Level II facilities, mostly larger hospitals and medical centers which offer relatively complete service for the final identification of *M. tuberculosis*. There are only two Level III laboratories in South Carolina. The Bureau of Laboratories offers complete service for the identification of *M. tuberculosis* and other mycobacteria as well as sensitivity testing when indicated.

The Mycobacteriology Section has been active in determining the incidence of primary drug resistance in cases of newly diagnosed tuberculosis. Each year the Bureau of Laboratories

ROLE OF THE STATE LABORATORY

spends thousands of dollars doing susceptibility testing on isolates from new cases of tuberculosis. It became apparent that there was very little drug resistance among isolates from previously untreated cases of tuberculosis and there was virtually no multiple drug resistance to the three most commonly used antitubercular drugs.

Cooperative studies were undertaken with the Center for Disease Control in 1971 and these are summarized in Table II. In 1971, 1.8% of 669 new cases of tuberculosis showed resistance to a single drug. In 1976, 0.8% of 630 new cases of tuberculosis showed resistance. The majority of resistance during the period 1971 to 1976 was to streptomycin and to INH (0.94% and 0.68% respectively). During that period there were 3,837 new cases of tuberculosis in the state of South Carolina. During the six years of the study, only one isolate was found resistant to Rifampin. Of the 3,837 new cases of tuberculosis tested during this period, only 70 (1.8%) showed resistance to any of the primary drugs.

In view of the cost involved, the Bureau of Laboratories, after consultation with the Center for Disease Control and the Bureau of Tuberculosis Control elected to discontinue routine susceptibility testing of the isolates from primary tuberculosis. We will continue to offer the services (1) on isolates from cases of apparent treatment failure, (2) on isolates from previously treated cases and (3) on all clinically significant atypical mycobacteria.

For those clinicians who would like to make use of our services — which are free — collection kits and request slips are available from the Division of Scientific Services, Bureau of Laboratories (Mr. John Dowd at 758-5415). We do ask that the containers and slips be utilized only for specimens suspected of containing mycobacteria. Additional information concerning the services of the Mycobacteriology Section can be found on pages 85-90 of the manual "Services of the Bureau of Laboratories," Third Edition 1976. Specimens as outlined in Table III should be collected and submitted as shown.

TABLE II
NUMBER OF ISOLATES
RESISTANT TO PRIMARY DRUGS

Fiscal Year	Number of New Cases	Number Resistant to Primary Drugs	Percent	INH*	SM	PAS	Rf
1971	669	12	1.8	3	9	0	0
1972	651	11	1.7	6	4	1	0
1973	619	13	2.1	5	6	1	1
1974	641	22	3.4	6	12	4	0
1975	627	7	1.1	3	3	1	0
1976	630	5	0.8	3	2	0	0
TOTAL	3,837	70	1.8	26	36	7	1

*INH = Isoniazid
SM = Streptomycin
PAS = Para-aminosalicylic
Rf = Rifampin

ROLE OF THE STATE LABORATORY

TABLE III

COLLECTION AND SHIPMENT OF MYCOBACTERIAL SPECIMENS

TYPE SPECIMEN	COLLECTION TIME	AMOUNT	NUMBER OF SPECIMENS	TYPE CONTAINER	SPECIAL PROCEDURE
Sputum	Early AM Upon waking	5-10 ml.	Series of 3 One/Day	DHEC out-fits for collection	Sputum - material coughed up from deep in lungs - not saliva
Urine	Early AM	Entire specimen, centri-fuge 10 ml.	Series of 3 One/Day	Same	Voided midstream specimen collected as aseptically as possible. Transport to lab immediately.
Gastric Washing	Early AM	10 ml.	1 or more as needed	Same	No food after midnight. Pass 20-50 ml. sterile distilled water through stomach tube and draw off specimen in sterile tube
Biopsy				Same	Collect in sterile tube as aseptically as possible. No fixative or preservatives
Sterile Body Fluids (blood, spinal, pleural, joint, etc.)		10 ml.	1 or more as needed	Same	If blood, add <i>sterile</i> anticoagulant such as heparin or ammonium oxate

INSTRUCTIONS FOR THE COLLECTION AND SUBMISSION OF SPECIMENS FOR MYCOBACTERIA CULTURE

Outfits for the collection and shipment of specimens consist of a sterile plastic tube and request form #1306 in a double mailing container with a yellow address label. These outfits may be obtained from local county health departments or directly from the Bureau of Laboratories and *ARE TO BE USED ONLY FOR SPECIMENS FOR MYCOBACTERIAL EXAMINATION*. The sender should fill out the request form carefully and completely. It is essential that all information requested be supplied as to the type specimen, therapy, diagnosis, etc. If the patient has no clinical history of having had tuberculosis, mark the request form as a **NEW CASE**. If the patient has a past history of tuberculosis, mark the request form **OLD CASE** and then indicate if patient is active, inactive, or undetermined. ☐

MILIARY-MENINGEAL TUBERCULOSIS DURING PREGNANCY: CASE REPORT, AND BRIEF SURVEY OF THE PROBLEM OF EXTRA-PULMONARY TUBERCULOSIS*

JAMES W. STANDS, M.D.**

R. GREGORY JOWERS, M.D.***

CHARLES S. BRYAN, M.D.

Although pulmonary tuberculosis during pregnancy continues to be a problem of major concern,¹ tuberculous meningitis as a complication of pregnancy has been rarely reported in western countries. Our purpose is to document such a case and to survey the problem of diagnosis of extra-pulmonary tuberculosis.

CASE REPORT

A 29 year old, gravida 5, para 4, abortus 0 woman who was approximately five months pregnant by dates was admitted to the hospital because of a two to three week history of malaise, sore throat, fever, and cough productive of sputum which was sometimes blood-tinged. She denied history of tuberculosis or of tuberculous exposure. Physical examination revealed the presence of fever, tachycardia, dyspnea, scattered inspiratory wheezes throughout the chest, and a gravid uterus of 28-30 weeks estimated size. There was no appreciable adenopathy. Choroidal tubercles were not seen.

Chest x-ray on admission (Figure 1) was considered to show clear lung fields with questionable enlargement of the right hilum. White blood count was 4800 per cmm with an unrevealing differential count. The serum sodium was 130 mEq/L. The serum lactic dehydrogenase was 600 (normal up to 225), glutamic oxalacetic transaminase 91 (normal up to 40), and alkaline phos-

phatase 346 (normal up to 115) international units per milliliter. Tuberculin skin test was negative (no induration to 5 tuberculin units of PPD-S). Cerebrospinal fluid was abnormal but non-diagnostic (Table I).

Daily temperature elevations up to 103 °F, often with a double quotidian pattern, continued to occur. A repeat chest x-ray on the 6th hospital day (Figure 1) revealed diffuse micronodular (miliary) disease. The cerebrospinal fluid became increasingly abnormal (Table I), with falling glucose and rising protein content. Microscopic examination of concentrated sputum revealed acid-fast bacilli. These were also found on examination of a bone marrow specimen, which contained caseating granulomata on histologic examination.

On the 8th hospital day, therapy was begun with isoniazid 300 mg and rifampin 600 mg per day. Three days later, she developed, in sequence, stupor, nuchal rigidity, and spontaneous rupture of the membranes. She was transferred promptly to the labor and delivery floor. Her condition rapidly deteriorated with the occurrence of grand mal seizures. Due to the presence of probable cerebral edema, she was given dexamethasone, 10 milligrams intravenously followed by 4 milligrams every 6 hours. She became hypertensive; for this and recurrent grand mal seizures magnesium sulfate and phenytoin (Dilantin) were also administered. She eventually delivered a viable 2100 gram infant.

Delirium with hallucinations occurred postpartum, but by the third day there was improvement and by the eighth day she was afe-

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brile. She was eventually discharged from the hospital on isoniazid and rifampin. *Mycobacterium tuberculosis* was isolated from cultures of cerebrospinal fluid, bone marrow, sputum, and placenta. No evidence of tuberculosis was found

in the infant. Contact investigation revealed that the father of the infant suffered from untreated, cavitary pulmonary tuberculosis. A 2 year old child in the household was found to have a positive tuberculin skin test.

TABLE I. CEREBROSPINAL FLUID FINDINGS

HOSPITAL DAY	GLUCOSE	PROTEIN	RED BLOOD CELLS	WHITE CELLS*		SMEAR FOR ACID-FAST BACILLI
				PMN's	MONOS	
	←--- mg/dl ---→		←----- cells/cmm -----→			
2	63	19	15	13	17	none seen
4	39	36	31	2	17	none seen
12	37	272	1395	13	28	none seen

*PMN's = polymorphonuclear leukocytes; monos = mononuclear leukocytes

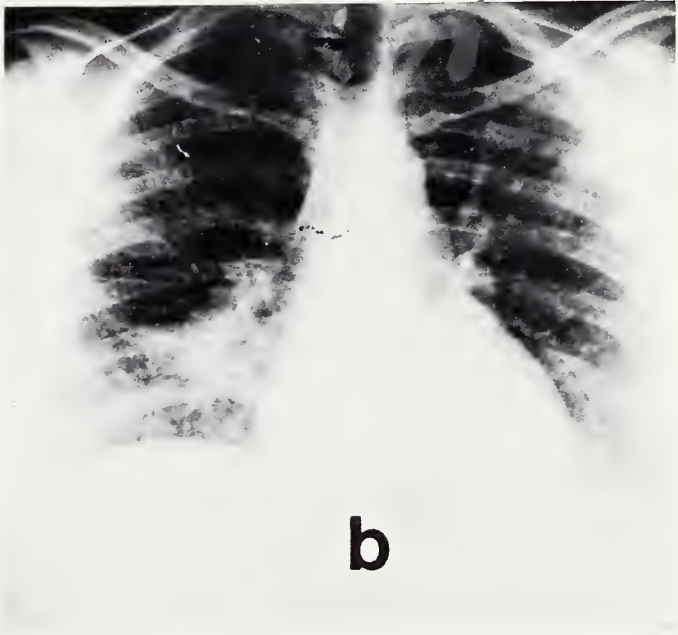
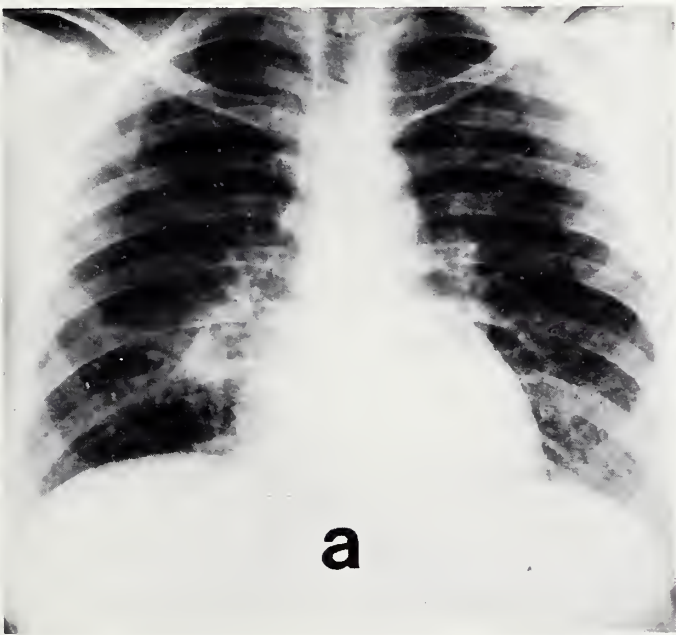


FIGURE I. Chest x-ray on admission (a) revealed apparently clear lung fields; six days later (b), a diffuse, finely-nodular infiltrate was evident.

DISCUSSION

Tuberculous meningitis characteristically occurs within the first six months of infection by *M. tuberculosis*.² Recently exposed to an active, untreated case of pulmonary tuberculosis, this patient developed disseminated tuberculosis with meningitis during the second trimester of pregnancy. An apparently normal chest x-ray, a negative tuberculin skin test, and non-diagnostic initial cerebrospinal fluid findings led to a delay in diagnosis. Stupor, grand mal seizures, and spontaneous rupture of the membranes subsequently occurred; fortunately, both the mother and the infant survived.

Meningeal tuberculosis during pregnancy has been reported only rarely from western countries. From Greece, Stephanopoulos³ reported 6 instances and reviewed an additional 31 cases from the literature. In only two of these was there concomitant disseminated (miliary) tuberculosis. From India, D'Cruz and Dandekar⁴ reported 11 cases, none with concomitant disseminated tuberculosis. In both of these series, the highest incidence was during the second trimester. The mortality rates were 32 and 64 percent, respectively, for the two series, despite the availability of antituberculous drugs.

The major syndromes of extra-pulmonary tuberculosis are summarized in Table II. Overlap occurs; for instance, 1 to 79 percent of patients with tuberculous meningitis also have miliary tuberculosis.² That miliary tuberculosis can be a subtle or "cryptic" illness is well-known. Summarized in Table III are the percentages of cases in recent series in which various classic findings have been absent. Often of diagnostic value are repeat physical examinations, chest x-rays, and tuberculin skin tests; microscopic examinations of bone marrow aspirates and of biopsy specimens of liver or palpable lymph nodes; and, in some instances, therapeutic trial of isoniazid.

Deserving continued emphasis are the problems of diagnosis of tuberculosis of anatomic spaces or cavities. The AFB smear is helpful in only a minority of instances (Table IV), and is a poor method of "excluding" these diagnoses. Cultures may be similarly unrevealing. These observations are explained, in part, by the thesis that the symptoms and signs owe predominantly to the inflammatory response evoked by tuberculin antigens rather than to active multiplication of tubercle bacilli in these body fluids. In several of these syndromes (Table IV), open biopsy is con-

TABLE II. MAJOR SYNDROMES OF EXTRA-PULMONARY TUBERCULOSIS

- I. DISSEMINATED (MILIARY) TUBERCULOSIS
 - A. Hyperacute
 - B. Hypoacute, chronic
- II. TUBERCULOSIS OF ANATOMIC SPACES AND CAVITIES
 - A. Tuberculous pleurisy
 - B. Tuberculous pericarditis
 - C. Tuberculous meningitis
 - D. Tuberculous peritonitis
 - E. Tuberculous arthritis
- III. TUBERCULOSIS OF SOLID ORGANS
 - A. Renal (genitourinary) tuberculosis
 - B. Tuberculous osteomyelitis
 - C. Tuberculosis of the adrenal glands
 - D. Tuberculous peripheral lymphadenitis

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sidered to be the only “sure method” for excluding tuberculosis. Purification of tuberculin antigens⁸ and development of rapid and sensitive methods for their demonstration in body fluids would facilitate early diagnosis. □

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TABLE III. MILIARY TUBERCULOSIS: PERCENTAGE OF NEGATIVE FINDINGS
IN RECENT AMERICAN STUDIES

SENIOR AUTHOR	NUMBER OF CASES	ABSENCE OF MILIARY PATTERN ON INITIAL CHEST X-RAY	NEGATIVE TUBERCULIN TEST (5 TU)	ABSENCE OF FEVER	NORMAL SERUM ALKALINE PHOSPHATASE
←-- percentage of patients with this finding --→					
Grieco ⁵	28	70	48	7	14
Gelb ⁶	109	25	45	15	50
Munt ⁷	69	33	21	6	66

TABLE IV. TUBERCULOSIS OF ANATOMIC SPACES AND CAVITIES: PERCENTAGE
OF POSITIVE FINDINGS IN RECENT STUDIES*

SYNDROME	AFB SMEAR	AFB CULTURE	BIOPSY
← percentage of patients with positive result →			
Tuberculous pleurisy	"rare"-70	24-70	50-80
Tuberculous pericarditis	"almost never"	"minority"-50	83
Tuberculous meningitis	10-30	32-60	-----
Tuberculous peritonitis	0-2	8-83	83-100
Tuberculous arthritis	8-27	76-86	85-100

*Data based on survey of recent literature in English (references available upon request). By positive biopsy is meant histologic findings consistent with tuberculosis.

President's Page



TO MY FELLOW PHYSICIANS:

In this President's article, I want to express sincere thanks to the membership for your response in moving to a new Convention Hotel facility. I also want to pay tribute to the hard work by many of our SCMA officers and other leaders, especially Speaker of the House, Bill Hunter, and to the staff of the SCMA for coordinating the convention. The 1977 Convention, in my opinion, was one of the best we have ever had.

Also to be noted were the concurrent meetings of several of our statewide specialty societies. I feel this worked to the mutual benefit of all.

We will start working immediately to have an even better Convention next year, and we welcome any and all suggestions.

The days of the medical profession being able to practice medicine and to not worry about other health care problems and planning are in the past.

Our responsibility still is to practice medicine to the best of our ability, but now we must be concerned with cost, the methods of delivery, and the protection of the patient when it becomes necessary.

Many may want to avoid the involvement in planning, but we can participate or get left out. Then we will only be able to ineffectively complain.

It is my feeling that the time is ripe for organized medicine and the individual physician to stand up and say we like a lot about our health care system, but maybe it could be better. We will help plan to make it so.

This response on the editorial front to our action in Myrtle Beach supporting the AMA's alternative to the other NHI proposals was excellent. I am proud that we have a conservative yet a progressive House of Delegates.

Waitus O. Tanner, M.D.
President

AUXILIARY PRESIDENT'S PAGE



Mrs. Rufus H. Cain, Jr. of Dillon was installed as President of the South Carolina Medical Association Auxiliary at the Annual Convention in Myrtle Beach. She has served in many positions in the Pee Dee Medical Auxiliary, including the presidency in 1960-1961, and organized the Dillon County Auxiliary in 1976. Mrs. Cain is on the Board of Directors of Avalon Academy, the Board of the South Carolina Independent Schools, the Planning Board for the South Carolina Health Department, and Eastern District President of the South Carolina Federation of Women's Clubs.

She was born Elise Gasque in Dillon and graduated from St. Andrews Presbyterian College with a B.A. in Elementary Education. Dr. Cain is engaged in Family Practice and they have five children.

NEW DIRECTIONS

It is a great time to be alive. We begin a new century in the life of our country. We say it's NEW DIRECTIONS. So it is with the auxiliary, NEW DIRECTIONS to shape the future and to challenge the best we have in us.

Dr. Albert Schweitzer said, "It is not enough merely to exist, you must give some time to your fellow man, even if it is a little thing. Do something for those who need man's help . . . for which you get no other pay, but the privilege of doing."

As we set our goals for the coming year, we have the privilege to keep *continuity* in the health programs of the American Medical Association that improve the health and quality of life for all people; the privilege to *create* interest, to educate oneself and others in health needs and health legislation; and the privilege to stimulate activity in AMA-ERF, Project Bank, legislation, health-related charitable endeavors and volunteer activities. Our direction is clear. Our goals are multiple, but our effectiveness depends on the dedication of the members . . . you and me.

There is the need to shape the future, to improve health and quality of life for all people. We are challenged to give the best we have in us, and to think of the auxiliary as a whole not a single unit. It is when we work together that we can be most effective.

Let us be alert and aware of the needs waiting to be met with our particular talents and energies. We are limited only by our own imagination. We are as strong as our weakest link. Each one of us can find some activity which challenges us and makes the world a better place because of our participation. Let's put that activity to work in the South Carolina Medical Association Auxiliary.

Each of us is privileged to be a part of this auxiliary because of our doctors' belief and dedication to the cause of medicine. It is through dedication and a unified effort that we hope to make our state a better place in which to live.

The privilege of doing is yours. The time is now. I challenge you to set the NEW DIRECTIONS to make 1977-1978 the foundation of a new century, strong, effective, and dedicated to the cause of medicine. It is a great time to be alive. It is a privilege to be a member and serve the South Carolina Medical Association Auxiliary.

Elise Cain
President

Editorials

TUBERCULOSIS: THREE CHALLENGES

Tuberculosis now presents special challenges to three groups: clinicians, public health authorities, and health system "planners."

Consider first the challenge for the clinician. In former decades, when the disease was common, treatment was difficult and ineffective though the diagnosis was made commonly and routinely. Now, paradoxically, the opposite is true; treatment is very effective, but the diagnosis is becoming more and more difficult to make. This difficulty resides in several facts. First, as case rates have fallen, tuberculosis has become to most physicians an uncommon disease, and precisely because it is uncommon it is not as routinely entertained as part of a differential diagnosis as it formerly was. A second source of difficulty lies in a curious epidemiological observation. Whereas the number of *pulmonary* tuberculosis cases has been steadily declining from year to year, the number of *extra-pulmonary* cases has been remaining constant. This means that the more unusual presentations of tuberculosis, whether involving bone, kidney, brain, etc., constitute an increasing percentage of the cases we are seeing. Tuberculosis, which was once thought of mainly as the province of the chest physician, will increasingly be of as much concern to the orthopedist, nephrologist or neurologist. The "protean manifestations" of the disease may, in the future, become as frequent as the more routine pulmonary manifestations. Therein lies the challenge to the clinician.

Secondly, consider the challenge to public health authorities. The consequences of declining case rates has meant that the random search for cases has become inefficient and unproductive. Hence, the x-ray mobiles have been retired. On the other hand, even if masses of tuber-

culosis patients can no longer be found, individual cases can be prevented. Tuberculosis is now a largely *preventable* disease. This is the challenge to the public health physician. Contact investigation and appropriate tuberculin screening programs have assumed new importance, since INH prophylaxis has become such a well established practice. The public health challenge is no longer just in the detection and treatment of cases, but lies as well in preventing new cases from even occurring.

The third challenge is to those who must plan and shape out systems of care. The planner must digest the very latest developments about tuberculosis from both clinicians and from public health officers. He has to master current concepts and realities about diagnosis, treatment, contact investigation and prevention. He must balance fiscal realities with medical ones, and decide how best to allocate limited financial resources. He must choose between budgeting for more clinics or for more clinicians. He must weigh the expense of routine rifampin use against the need for more nursing salaries. He must choose how to allocate his funds between inpatient and outpatient programs.

Tuberculosis has changed. Gone are the days when every chronic pneumonia was diagnosed as tuberculosis. (It probably was — then!) Gone are the days when tuberculosis was an inevitable part of the community's health burden. Gone are the days when the sanatorium was *the* solution. Diagnosis is tougher, the disease is preventable, and entirely new systems of care can be found. These are the three challenges of tuberculosis today. □

E. Kenneth Aycock, M.D., M.P.H.

ON NATIONAL HEALTH INSURANCE

(Editor's Note: National Health Insurance was a major controversy at this year's SCMA convention, and it became evident that this question would occupy us for years to come. The following editorial was prepared by the Public Affairs Division of the American Medical Association for publication in state medical journals.)

If we in organized medicine say "no" to any form of National Health Insurance, we're going to be outshouted, outdone — and perhaps undone — by the labor-liberal crowd that has a strong "yes."

Certainly the Carter Administration will have a "yes," once three preconditions are met. These preconditions are reorganization of the Department of Health, Education, and Welfare (already initiated), welfare reform (for which a task force has been named), and cost controls (as embodied in the proposed ceiling, or "cap," on hospital-cost increases).

Proof of the Administration's commitment to NHI is furnished by HEW's appointment of an Advisory Committee on National Health Insurance Issues. The 29 public members include Edgar T. Beddingfield, M.D., chairman of the AMA Council on Legislation, but also two outspoken labor leaders — President Leonard Woodcock of the United Auto Workers and Bert Seidman of the AFL-CIO — plus other liberals.

In announcing the appointments, HEW Secretary Joseph A. Califano Jr. said NHI "is a cornerstone in the structure of the President's domestic policy."

So we can be on the lookout for the Administration to offer an NHI proposal next year — and strive to get it enacted before the 1980 elections.

This proposal, if not basically a facsimile of the Kennedy-Corman-labor NHI bill, is likely to defer to its principal elements — the way the 1976 Democratic platform did.

What is the best way — really the only way — to head off this danger?

Well, no less conservative a U. S. Senator than John G. Tower of Texas has stated, "The most viable means of avoiding the Kennedy-Carman version of socialized medicine is to oppose it with more reasonable alternatives."

And as Congressman Paul G. Rogers of Florida — an influential figure in health-care legislation — has said, "It is my view that to simply oppose legislation without offering alternatives rarely is an effective approach on Capitol Hill."

The American Medical Association's comprehensive health insurance measure is the reasonable alternative.

The AMA recognizes that most of the general public (the ultimate arbiter on the issue) wants an NHI bill. The majority, according to a recent Gallup Poll, want a form of it that is largely free of federal involvement and funding. A plurality — 39 per cent of the people polled — want a version that tallies pretty much with the AMA bill.

The AMA measure would preserve the private thrust of care and its financing. It would depend principally on employer-employee contributions and apply federal funds only to the poor and jobless. These funds, mind you, would come from general revenue — not from any special levy, like the already runaway Social Security tax.

In short, here's a bill that would preserve our professional freedom while honoring the public's wants and needs. We can't let the labor-liberal forces have the NHI ball to themselves. We have to be on the field fighting for it — and fighting as a great, strategic team. □

— Public Affairs Division of
American Medical Association

LETTERS TO THE EDITOR

Dear Sir:

I would like to respond to the article by Doctor Lawrence Jowers in the March issue of the Journal. In his article Doctor Jowers stated that the A.M.A. and A.H.A. have gone on record that persons with qualifications of physician's assistants who are employed by hospitals are not to function in that role. He cited JAHA Vol. 45 June 1, 1971, as his authority.

Attached you will find policy statements adopted by the AMA House of Delegates in December 1971 and an approved statement by the AHA Council on Professional Services, March 7-8, 1974, which are in conflict with Doctor Jowers statement.*

In no way do I wish to criticize Doctor Jowers' article, however I do wish to provide policy statements which were made later than his referenced source.

I would also like it to be known that any physician in South Carolina wishing to hire a physician's assistant may write me at P. O. Box 1174, Seneca, South Carolina stating just what they desire in regards to age, sex and qualifications and I will try to find the P.A. for that particular practice.

Eugene F. O'Connor, PA-C
President of South Carolina
Academy of Physicians'
Assistants
Route 2, Box 190
Seneca, S. C. 29678

*Available from the writer on request.

MEETING ANNOUNCEMENT

The Southern OB-GYN Seminar will hold its 23rd Annual Meeting at the Grove Park Inn, Asheville, N. C., from July 24 through July 29, 1977. For information, write Dr. Otis Duck, Mars Hill, N. C. 28754.

BRIEF SUMMARY OF PRESCRIBING INFORMATION

ANTIMINTH® (pyrantel pamoate) **ORAL SUSPENSION**

Actions. Antiminth (pyrantel pamoate) has demonstrated anthelmintic activity against *Enterobius vermicularis* (pinworm) and *Ascaris lumbricoides* (roundworm). The anthelmintic action is probably due to the neuromuscular blocking property of the drug.

Antiminth is partially absorbed after an oral dose. Plasma levels of unchanged drug are low. Peak levels (0.05-0.13 $\mu\text{g/ml}$) are reached in 1-3 hours. Quantities greater than 50% of administered drug are excreted in feces as the unchanged form, whereas only 7% or less of the dose is found in urine as the unchanged form of the drug and its metabolites.

Indications. For the treatment of ascariasis (roundworm infection) and enterobiasis (pinworm infection).

Warnings. *Usage in Pregnancy:* Reproduction studies have been performed in animals and there was no evidence of propensity for harm to the fetus. The relevance to the human is not known.

There is no experience in pregnant women who have received this drug.

The drug has not been extensively studied in children under two years; therefore, in the treatment of children under the age of two years, the relative benefit/risk should be considered.

Precautions: Minor transient elevations of SGOT have occurred in a small percentage of patients. Therefore, this drug should be used with caution in patients with preexisting liver dysfunction.

Adverse Reactions. The most frequently encountered adverse reactions are related to the gastrointestinal system.

Gastrointestinal and hepatic reactions: anorexia, nausea, vomiting, gastralgia, abdominal cramps, diarrhea and tenesmus, transient elevation of SGOT.

CNS reactions: headache, dizziness, drowsiness, and insomnia. Skin reactions: rashes.

Dosage and Administration. *Children and Adults:* Antiminth Oral Suspension (50 mg of pyrantel base/ml) should be administered in a single dose of 11 mg of pyrantel base per kg of body weight (or 5 mg/lb.); maximum total dose 1 gram. This corresponds to a simplified dosage regimen of 1 ml of Antiminth per 10 lb. of body weight. (One teaspoonful=5 ml.)

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How Supplied. Antiminth Oral Suspension is available as a pleasant tasting caramel-flavored suspension which contains the equivalent of 50 mg pyrantel base per ml, supplied in 60 ml bottles and Unitcups™ of 5 ml in packages of 12.

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THERE ARE A LOT OF PEOPLE GETTING BETWEEN YOU AND YOUR PATIENT.

Medicine today is in the spotlight, subjected to all kinds of scrutiny. Your control over patient therapy is being monitored, judged and occasionally abrogated, sometimes by unknown third parties.

The worry is that in the wake of this focus, the relationship between you and your patient will be weakened, without offsetting benefits. Consider three examples:

Drug substitution In most states, pharmacy laws, regulations or professional custom stipulate that your generic prescriptions be filled with the precise product you prescribe. But in the last five years, a dozen or more State laws have been changed, permitting the pharmacist in most cases to select a product of the same generic drug to fill any prescription.

Ironically, this dilution of physician control has taken place against a background of growing evidence that purportedly equivalent drug products may be inequivalent, since neither present drug standards nor their enforcement are optimal. In fact, the FDA itself says it has not enforced the same standards for hundreds of "follow-on" products that it had applied to the original drug approvals. Thus physician control over patient therapy is being eroded with a risk that patients may be exposed to drugs of uncertain quality.

The major advertised claim for substitution is reduced prescription prices for consumers. Yet no documentation of any significant savings has been produced.

MAC Maximum Allowable Cost, MAC for short, is a federal regulation designed to cut the Government's drug bill by setting price ceilings for drugs dispensed to Medicare and Medicaid patients. Unless the prescriber writes on the prescription that a particular product is medically necessary, the Government intends to pay only the cost of the lowest-priced, purportedly-equivalent,

generally-available product. The effect of the program may be that elderly and indigent patients will be restricted to products which someone in Washington believes are priced right. Practicing doctors will have little to say about administration of the program, since Government will have absolute authority to make its choices stick.

The drug lag The future of drug and device research depends upon a scientific and regulatory environment that encourages therapeutic innovations. The American pharmaceutical industry annually is spending more than \$1 billion of its own funds and evaluating more than 1,200 investigational compounds in clinical research. Disease targets include cancer, atherosclerosis, viruses and central nervous system disorders, among others. But there is a major barrier to the flow of new drugs to your patients: The cost of the research is more than ten times what it was, per product, in 1962; and whereas governmental clearance of new drug applications took six months then, it commonly consumes two years now.

The FDA needs adequate time, of course, to consider data. But it is equally clear that the present approval process contributes to needless delay of needed therapy. That's why the increased efficiency of the drug approval process is vital to all our futures.

If these issues concern you, we suggest that you make your voice heard—among your colleagues and your representatives in State legislatures and in Washington.

It could make a difference in your practice tomorrow.



Pharmaceutical Manufacturers Association
1155 Fifteenth Street, N.W., Washington, D.C. 20005

HIGHLIGHTS

SCMA ANNUAL MEETING, 1977

MYRTLE BEACH, SOUTH CAROLINA



William H. Hunter, M.D., Speaker of the House, Presides at the Opening of the SCMA Annual Meeting.



Waitus O. Tanner, M.D., being sworn in as President of SCMA, by J. D. Gilland, M.D., and Halsted M. Stone, M.D.



SCMA Officers being sworn in by Chairman of Council, Halsted M. Stone, M.D.



Waitus O. Tanner, M.D., President; Halsted M. Stone, M.D., Chairman of Council, and President-Elect John C. Hawk, Jr., M.D.



Debate on the Floor of the House.

**PHYSICIAN
RECRUITMENT/PLACEMENT**

The following physicians are actively seeking practice appointments in South Carolina:

INTERNAL MEDICINE — Age, 29. Graduated Medical University of S. C., 1974. Residency, Charity-Tulane, New Orleans, La., 7/76-present. Licensed in S. C. & La. Passed FLEX. Board certified. Will be board eligible in 1978. Interested in partnership, multi-specialty or solo type practice in moderate size community. Is especially interested in Camden, S. C. area. Available 7/78.

OB/GYN — Age, 31. Bowman Gray Med. School, Winston-Salem, N. C., 1972. Residency, Univ. of Colo., Medical Center, 6/73-7/76. Licensed in Colorado and S. C. Board certified and Board eligible. Currently serving in U. S. Navy, 76-78. Seeks partnership, single-specialty group or solo practice in large metropolitan area. Prefers Low Country. Salary open. Available immediately.

GASTROENTEROLOGY, INTERNAL MEDICINE — Age, 31. University of Tennessee, 1970. Residency, Univ. of Tenn. Affiliated Hospitals, Memphis, Tenn., Internal

Medicine; Univ. of Alabama, Gastroenterology, 7/76-7/78. Licensed in three states. Board certified, Int. Med.; Board eligible, Gastroenterology, 1978. Seeks partnership, single-specialty group, solo or multi-specialty group in community of 100,000+. No preference as to area of state. Salary open. Available 7/78.

PEDIATRICS — Age, 49. West London Hospital Medical School, Hammersmith, London, England, 1963. Residency, Good Samaritan Hospital, Cincinnati, Ohio, 7/69-6/72. Fellowship, Children's Hospital, Cincinnati, Ohio, 7/72-6/74, Adolescent Medicine. Board eligible, 1972. Seeks multi-specialty group, emergency room, or partnership in community of large metropolitan area. Prefers coastal area. Available 6/77.

If interested in any of these physicians or seeking a physician to join your practice, contact:

*Director, Physician Recruitment
Rural Health Delivery Project
P. O. Box 11188
Columbia, S. C. 29211
(803) 779-7264*

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Contact: Rural Health Delivery Project (Address Above)

**ADDITIONS AND
CORRECTIONS**

“Modified simple technique for liver resection,” by Joseph Hodge, M.D., vol. 73, no. 4 (April 1977): Dr. Hodge has advised us that under “description of the instruments,” page 139, the clamp blades should have been described as 22 *cm in length* rather than 2 *cm*.

“Transsphenoidal hypophysectomy in the management of metastatic breast carcinoma,” by Stephen E. Rawe and Phanor L. Perot, Jr. vol. 73, no 4 (April 1977): Dr. Rawe has advised us that the name of Warren Y. Adkins, M.D., was inadvertently left out as a second author of this article during its preparation.

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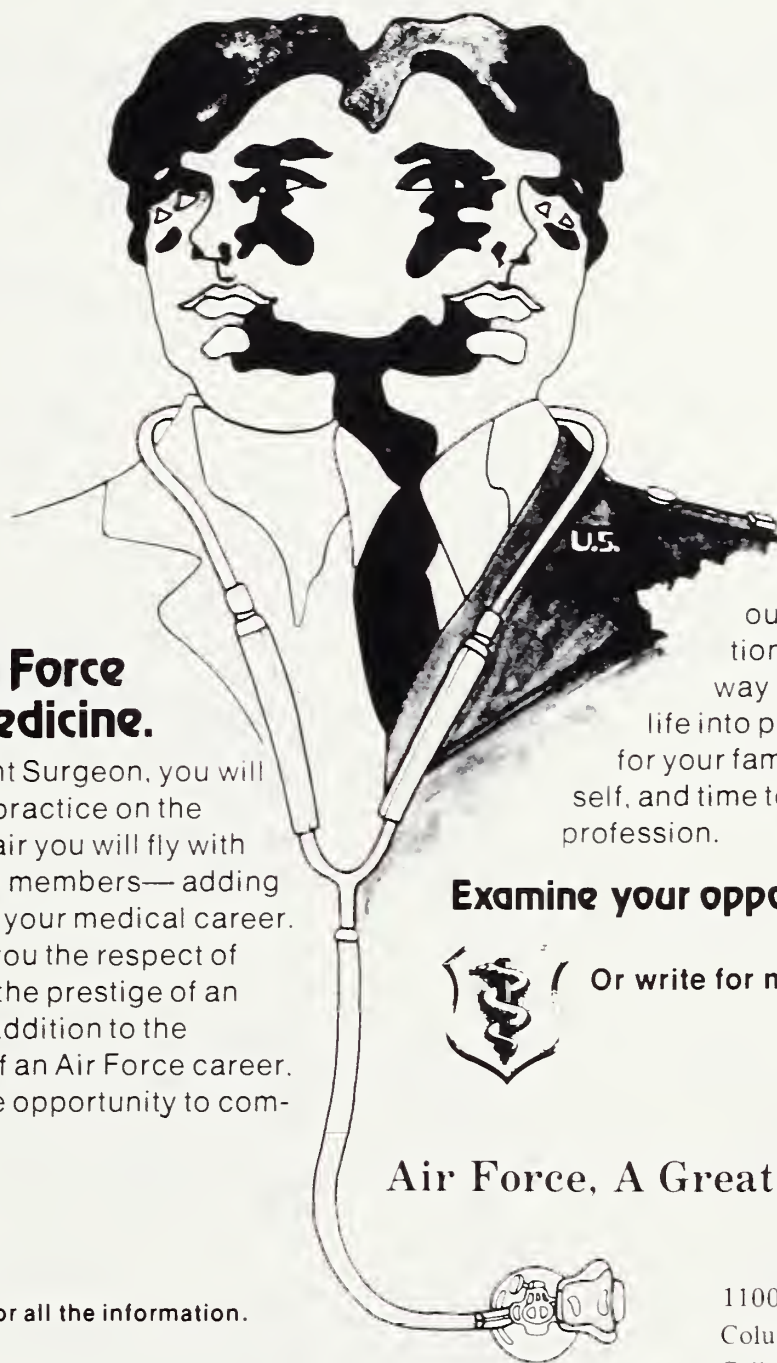
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INFORMATION FOR AUTHORS

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Post Office Box 11188
Columbia, S. C. 29211

We encourage original articles of potential benefit and interest to the members of the South Carolina Medical Association; priorities for publication are indicated in the January 1977 issues of The Journal. Cons articles (of approximately 8 typewritten pages), containing relatively few, well-selected references, are preferred. References should be cited in the text in superscript, e.g., "Bone and colleagues² . . .", and should conform to the following style: "2. Bone, RC, Francis, PB, Pierce, AK: Intravascular coagulation associated with adult respiratory distress syndrome. Amer J Med 61: 585-589, 1976." Ordinarily, publication of four small illustrations or the equivalent will be paid for by The Journal. Authors may assume cost of additional figures.

Manuscripts should be typewritten and double-spaced. The original and one copy should be submitted; a third copy should be retained by the author for use in proofing. Reprints will be made available by the publisher at established rates.



MALIGNANT LYMPHOMA OF THE STOMACH

TERENCE N. MOORE, M.D.*

HUGH J. SCRUGGS, M.D.*

RICHARD D. MARKS, JR., M.D.**

KEENE M. WALLACE, M.D.***

Although we tend to think of lymphoma in terms of generalized disease, these lesions may be localized to a specific organ or region, and may closely resemble carcinoma in their behavior. Such is the case with malignant lymphoma of the stomach. This notion is borne out by the large numbers of surgical cures of lymphoma of the stomach reported in the literature. (Table I)

In contrast to adenocarcinoma of the stomach, malignant lymphoma is radiosensitive and radiocurable even in the presence of involved regional nodes. Involvement of other neighboring organs (liver, spleen, and pancreas) does not preclude a five year survival. Lymphoma of the stomach comprises about eight per cent of all gastric malignancies and thus, is hardly considered rare.³ It also represents 50 per cent of all sarcomas of the stomach.^{3, 11}

The purpose of our study was to review the experience with supervoltage radiation therapy

in the treatment of patients with malignant lymphoma of the stomach at the Medical University of South Carolina.

TABLE I

5 Yr. Survival in
Primary Gastric Lymphosarcoma

Author	% 5 Yr. Survival
Allen, et. al. ¹ (1954)	58.0%
Archer & Cooper ² (1939)	13.8%
Brown, et. al. ³ (1965)	44.4%
Burnett & Herbert ⁴ (1956)	Resection - 42.8%
	Surg + RT 66.6%
Crile, et. al. ⁵ (1952)	68.0%
Friedman ⁶ (1959)	29.5%
Jenkinson, et. al. ⁷ (1954)	50.0%
Jensen ⁸ (1967)	62.0%
Marshall & Meissner ⁹ (1950)	67.0%
McNeer & Berg ¹⁰ (1959)	35.0%
Redd ¹¹ (1959)	1/3 33.3%
Salmela ¹² (1968)	23.1%
Sherrick, et. al. ¹³ (1965)	52.0%
Snoddy ¹⁴ (1952)	His 38/3%
	Lit. 10.5%
Taylor ¹⁵ (1939)	8.4%
Thorbjarnarson ¹⁶ (1956)	41.3%
Veidenheimer & Logan ¹⁷ (1967)	66.6%

* Assistant Professors of Radiology, Division of Radiation Therapy, MUSC

** Associate Professor of Radiology, Division of Radiation Therapy, MUSC

*** Professor of Radiology, Head, Division of Radiation Therapy, MUSC, 80 Barre Street, Charleston, S. C. 29401

MALIGNANT LYMPHOMA

MATERIALS AND METHODS

We studied, retrospectively, 24 patients seen in the Division of Radiation Therapy at the Medical University of South Carolina with the diagnosis of Stage I or II malignant lymphoma of the stomach.

Previously, Moore et al, in a report on 13 patients with lymphosarcomas had seen no recurrences after two years,¹⁸ but Freidman, in a report of 64 patients with lymphosarcoma and 11 with reticulum cell sarcoma, has reported six recurrences in patients with lymphosarcoma after five years and felt that a five year survival was no assurance of cure.⁶ Only one patient with reticulum cell sarcoma survived five years. Details of irradiation in 40 patients are lacking and sites of recurrence are not reported. Because of Friedman's data, we have studied five and ten year results in our patients.

Sixteen patients were treated with supervoltage irradiation utilizing a 2 MeV General Electric Resonance Transformer, or an SHM T-4 Linear Accelerator. Ten patients were treated with parallel opposed left upper quadrant portals averaging 15 × 15 cm. in size and delivering from 2400 to 3700 rads at depth. Two patients were treated by whole abdominal strip therapy, and two by epigastric strip therapy, all to 3000 rads with one being given a 1000 rad boost to residual tumor. Two patients were so ill that only anterior portals could be treated. Neither of these two patients received a therapeutic dose, but the results are included in our analysis.

TABLE II

	WHITE	BLACK	
MALE	11	4	15
FEMALE	7	2	9
	18	6	24

RESULTS

The patients in our study ranged in age from 23 to 79 years with the median age of 50. Nine patients were seen in the 40 to 59 year old group and ten in the 60 to 79 year old group. (Figure I) Fourteen patients had reticulum cell sarcoma,

nine lymphosarcoma, and one did not have a biopsy confirmation of the diagnosis. Hodgkin's Disease of the stomach was not encountered in this series.

FIGURE I

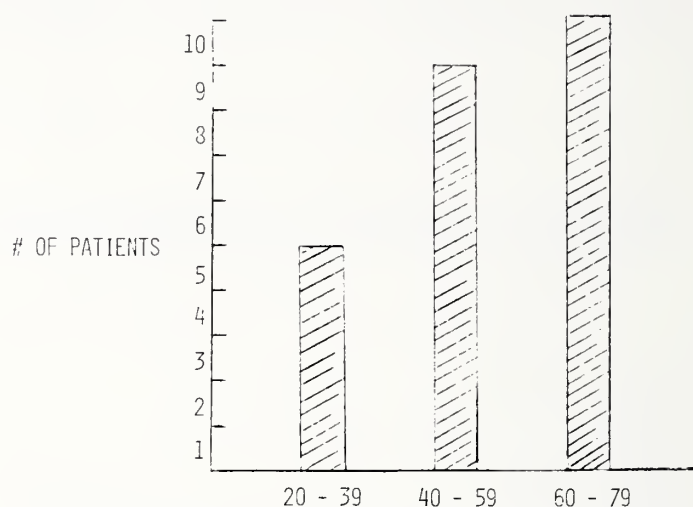


Figure I. Age Distribution of Patients with Malignant Lymphoma of Stomach.

There was no original staging classification, but retrospectively, we staged the patients according to the Ann Arbor classification.¹⁹ There were six Stage I patients and 12 Stage II patients. We had three patients in Stage III and two with Stage IV disease. One was of unknown stage. The latter patient had radiographic evidence of disease, but no biopsy was performed because of his poor physical condition.

Five patients were treated with surgery alone. Four had gastric resections and one had biopsy only because she was not considered a proper operative risk for resection. She died within two weeks of the biopsy procedure. Of the four resected patients, one had reticulum cell sarcoma and three, lymphosarcoma. The former died at one year; of the latter three patients, two are alive and show no evidence of disease for 152 and 216 months. The two year survival for the four resection only patients is two of four (50%), as are the five and ten year survival.

In the 19 patients treated with radiation, those with Stage I disease had a 60 per cent two year, and 40 per cent five year survival. In the Stage II patients, there was 64 per cent two year and a 57 per cent five year survival. One patient in each group died of intercurrent disease. There was also a 50 per cent ten year survival in the four patients who were eligible for such analysis. One

MALIGNANT LYMPHOMA

of these patients died of intercurrent disease after 75 months. (Table III)

TABLE III

	2 Yr.	5 Yr.	10 Yr.
STAGE I	3/5	2/5	
STAGE II	7/11	4/7	2/4

Among the 12 patients with reticulum cell sarcoma, the two year survival was 75 per cent, and the five year survival was 67 per cent. For the six lymphosarcoma patients, the two and five year survival rates were 50 per cent. Only one patient in the lymphosarcoma group was eligible for follow-up in the ten year period, and he is currently free of disease at 11 years. In the reticulum cell sarcoma group, only one in three patients survived ten years. (Table IV)

TABLE IV

	2 Yr.	5 Yr.	10 Yr.
RCS	9/12	6/9	1/3
LSA	3/6	2/4	1/1

When the mode of operative intervention was studied, it was found that 11 patients had resections and five patients had biopsy only, all followed by post-operative irradiation. In the resected group, two year survival was 55 per cent and the five year survival was 62.5 per cent. At ten years, 50 per cent of the patients, i.e., two of four were alive without disease. Local recurrence was a component in all patients dying with disease. One patient died of intercurrent disease at two years. Only three patients could be assessed at five years, and one was alive with no evidence of disease. This patient subsequently died at seven years, three months from intercur-

rent disease and had no evidence of lymphoma. (Table V). When the type of operation, cell type and stage were combined the results can be seen in Figure IIa, b & c. State II reticulum cell sarcoma patients, who had a resection, were the only group large enough to show any difference. In this group, three of six were surviving two years, and two of five at five years.

TABLE V

	2 Yr.	5 Yr.	10 Yr.
RESECTION	6/11	5/8	2/4
BIOPSY ONLY	4/5	1/3	

LYMPHOMA OF STOMACH

FIGURE IIa

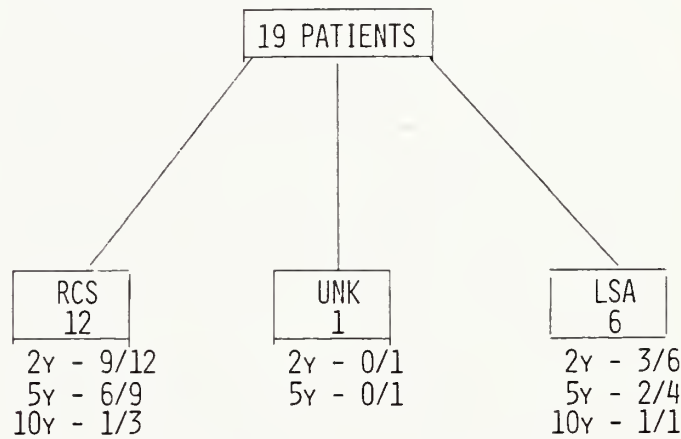


Figure IIa. Cell Types in Patients at MUSC with Malignant Lymphoma of Stomach with two and five year survivals.

DISCUSSION

In most studies reported in the literature, the treatment of choice for this disease has been surgery with regional supervoltage irradiation given if the regional nodes were involved, or if the tumor was not completely removed.^{1, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17} There is ample evidence of the value of radiation therapy as a single pro-

MALIGNANT LYMPHOMA

LYMPHOMA OF STOMACH

LYMPHOMA OF STOMACH

FIGURE IIB

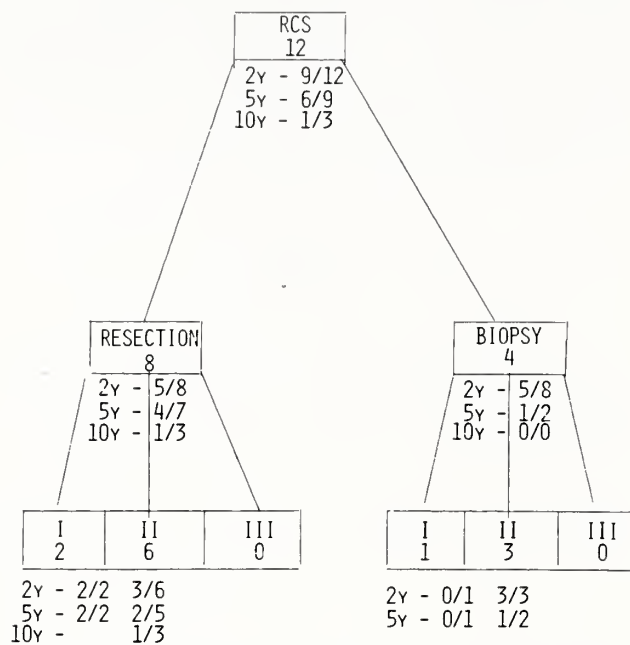


Figure IIB. Survival Statistics in Patients with Reticulum Cell Sarcoma of the Stomach.

FIGURE IIC

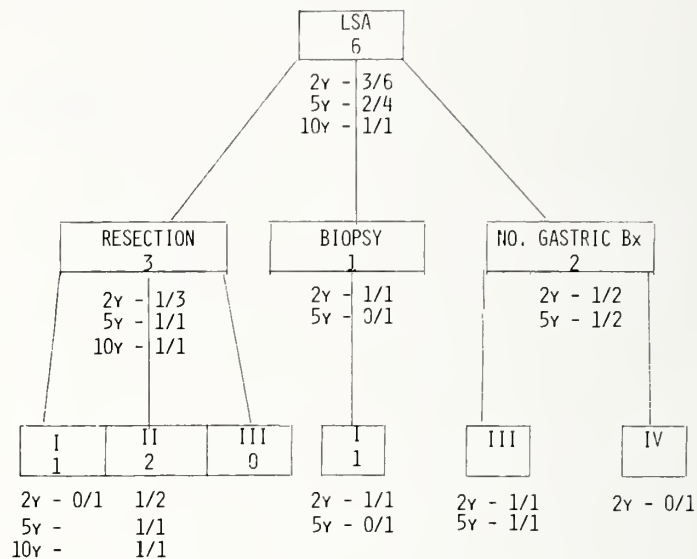


Figure IIC. Survival Statistics in Patients with Lymphosarcoma of the Stomach.

cedure or as a post-operative measure in the control of this disease,^{4, 14, 15, 20} when proven metastases are present. All regional adenopathy as well as any persistent primary disease must be included in the irradiated volume. Fields should be localized carefully in order to avoid the hazard of radiation nephritis. The recommended dosage has been 2500 to 4400 rads in four to six weeks for malignant lymphomas.^{21, 22, 23, 24} At the Medical University of South Carolina, we have delivered a median dose of 3000 rads to the mid-plane of the left upper quadrant through portals which average approximately 15 × 15 cm. in dimension. Our data indicate that this dosage is adequate for prophylaxis in malignant gastric lymphoma within reticulum cell sarcoma or lymphosarcoma. If gross residual disease is present, a boost dose of 1000 or 1500 rads is recommended to the region of involvement. Supervoltage radiation is recommended for treatment of lymphoma and our patients were so treated.

Lymphomatous involvement of the stomach occurs in 10 to 40 per cent of patients with generalized lymphoma at some stage of their disease.¹⁰ Cure is almost never seen in this situation. In adenocarcinoma of the stomach, the five year cure rate is achieved in only 10 per cent of the patients.¹⁷ On the contrary, lymphoma of the stomach is highly curable even in the presence of

extensive disease and regional metastases. The reported cure rates vary from 8.4 per cent¹⁵ to 69 per cent.⁵ Our results are different in one important aspect. Most of these studies have a predominance of lymphosarcoma which in the past has been shown to be more amenable to treatment and less aggressive than the reticulum cell sarcoma. In our series, reticulum cell sarcoma predominates and the survival rate in our patients is as good or better than the majority of the series previously reported. In one personal unpublished study from Duke University, only one of seven patients with reticulum cell sarcoma treated by biopsy and left upper quadrant radiation was alive and free of disease at five years.

SUMMARY

We have found that partial gastric resection and local irradiation of the region of involvement with a minimum of 3000 rads is adequate therapy in most patients with malignant gastric lymphoma. In our series, this has given excellent results even with the resistant reticulum cell sarcoma, thus indicating the necessity for this form of combined therapy. However, if gross residual disease is present, we recommend a boost dose of 1000 to 1500 rads to the region of involvement. □

(Continued on page 313)

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IMPOTENCE AND THE PENILE IMPLANT

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Sexual impotency in the male is that inability to initiate, or sustain, a satisfactory erection to successfully conclude the act of coitus. Erection involves a complex set of interactions between the psychologic, neurologic, endocrine and vascular systems. These organ systems may be lumped into two broad categories — organic and psychogenic — which serve as a classification of and a starting point for the treatment of impotence. Psychogenic Impotence is felt to be more common. Table I outlines a brief summary of organic causes.

In the absence of obvious organic disease, too often the conclusion is made that impotence is psychogenic. Until recently, there were no objective criteria by which the distinction between organic and psychogenic impotence could be made. The *sine qua non* of psychogenic impotence was lack of morning erections. It is now known that during the REM (rapid eye movement) phase of sleep penile erections occur.^{1, 2} Karacan was able to classify those patients lacking REM nocturnal erections as organic in etiology.³ Many of those patients denying morning erections do have normal nocturnal erections during REM sleep.

A portable, commercial unit is now available for monitoring nocturnal penile tumescence and can easily be used by the patient at home. The two transducers consist of expandable, mercury filled, thin, circular tubes which are placed at the proximal and distal ends of the penis. These are connected by wires to a unit which monitors amount and degree of nocturnal erection on a slow moving graph. This device makes it possible to objectively define those patients with weak or incomplete erection, as for example, due to Peyronie's Plaques.

After careful evaluation of etiology, each case requires specific therapy, be it manipulation of medications, medical correction of disease states, or psychiatric therapy. Despite these measures, a number of patients remaining impotent will benefit from a penile implant. These include those of organic impotence and a few select patients with psychogenic impotence not responding to an adequate trial of psychotherapy.

Since it was known that various male animals, such as the dog, are endowed with an "os penis," attempts have been made in the past to insert cartilage and bone into the penis but met with failure. The use of acrylic implants was first described by Goodwin and Scott.⁴ In 1960, Loeffler and Sayegh⁵ placed their acrylic prosthesis between the corpora cavernosa, and in 1966 Beheri described the placement of paired polyethylene rods within the corpora cavernosa.⁶ At the present time two types of implants are used. They both are paired, cylindrical tubes placed within the corpora cavernosa.

The Small-Carrion Penile Prosthesis, named after its developers,⁷ has a medical-grade silicone exterior and a silicone sponge interior and is available in several lengths and two diameters. It may be inserted through an incision on the dorsum of the penis with separate cavernosal incisions or through a perineal incision with, again, individual cavernosal incisions. The second type of device is an inflatable prosthesis pioneered by Dr. F. Brantley Scott.⁸ It consists of inflatable cylinders of various sizes with a filling and emptying valve located in the scrotum controlled by the patient and a fluid reservoir located behind the rectus muscles suprapubically.

The advantages of the Small-Carrion prosthesis are relatively low cost, ease of insertion and absence of any moving part that could malfunction. The disadvantages include a continuous erect position which requires jockey under-

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TABLE I

ORGANIC CAUSES OF IMPOTENCE

- 1. Medications
 - a. Phenothiazine Tranquilizers
 - b. Mao Inhibitors
 - c. Parasympatholytics
 - d. Antihypertensive Agents
 - e. Estrogens
 - f. Sedatives
 - g. Narcotics
- 2. Surgery
 - a. Perineal Prostatectomy
 - b. Radical Retropubic Prostatectomy
 - c. Cystectomy
 - d. Abdominal-Perineal Resection
 - e. Sympathectomy
- 3. Vascular Disease
 - a. Arteriosclerosis
 - b. Leriche Syndrome
 - c. Priapism
- 4. Neurological Disease
 - a. Spinal Cord Injury
 - b. Pelvic Fractures with Urethral Transection
 - c. Peripheral Neuropathies
 - d. Multiple Sclerosis
- 5. Endocrine and Metabolic Disease
 - a. Diabetes Mellitus
 - b. Hypogonadism
 - c. Renal Failure
- 6. Miscellaneous
 - a. Peyronie's Plaques

wear to keep the phallus inconspicuous, and the use of a perineal urethostomy if transurethral resection of the prostate is to be performed.

The advantages of the inflatable prosthesis are those of a more physiologic erection and ability to perform transurethral work when necessary. Disadvantages include the increased cost, possibility of malfunction of the valves or leakage of solution. As with all foreign bodies, the possibility of infection with each device is present but increased in diabetic patients. The presence of infection requires removal of the prosthetic device.

Prior to insertion of a penile implant, thorough psychiatric evaluation of both the patient and his sexual partner is mandatory. This should include an interview of each person separately and together. Function of a penile implant should also be clearly explained to both partners prior to surgery since it will act only as a splint to allow penetration, not erection or ejaculation. Ejaculation may or may not occur depending on the disease process.

SUMMARY

The physican faced with an impotent male can now approach the evaluation in an orderly and objective fashion. Although often complicated in etiology, the use of a nocturnal penile tumescence monitor can help select those patients who will be candidates for an implant. Both types of implants have been used and found to be acceptable to both partners in over 90 percent of our patients. □

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CLINICAL GUIDELINES FOR THE USE OF MICROAGGREGATE BLOOD TRANSFUSION FILTERS

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INTRODUCTION

Until recently, the filters of commercially available blood infusion sets were designed with pore sizes of 170 to 200 microns. These allowed the infusion of small particulate material found in stored blood into patients. Data obtained from studying combat casualties receiving massive blood transfusions demonstrated a significant relationship between the number of units of stored blood transfused and post-transfusion pulmonary insufficiency.¹ This led to innovative, new designs in blood infusion filters, utilizing a variety of materials, which decreased the pore size from 20 to 40 microns.² However, the use of these microaggregate blood filters significantly increases the cost of blood transfusion, perhaps as much as approximately five dollars per filter. Also, its use has a tendency to develop increased resistance to blood flow after a relatively few units of blood have been transfused³ and may limit the therapeutic benefit of some blood component therapy.⁴

Confusion about the clinical applications for these new blood filters is evident from a survey taken in some larger medical centers and teaching institutions in the Southeast and Midwest. Furthermore, neither the American Association of Blood Banks nor the American National Red Cross Blood Program had established rules or policies concerning the use of these filters.

The purpose of this paper is to offer clinical guidelines for use of microaggregate blood transfusion filters.

BACKGROUND AND DISCUSSION

Cellular degradation products consisting of platelets, leukocytes, fibrin strands and protein precipitates tend to form microaggregates in the buffy-coat layer of blood with prolonged storage, i.e., storage at 1°C to 6°C for greater than seven days.⁵ The microaggregates, ranging in size from 16 to 160 microns, are not removed by standard blood infusion filters having 170 micron pores. When "massive transfusions" are given over a short period of time, sufficient quantities of these microaggregates are infused to potentially cause pulmonary insufficiency. The actual mechanism by which pulmonary insufficiency results is unknown, but may result from actual physical obstruction of the pulmonary capillary bed by these aggregates⁶ or, more probably, stimulation of the release of biologically active substances into the pulmonary vasculature resulting in vasoconstriction and pulmonary insufficiency.⁷ An additional property of these microaggregates is their potential antigenicity when infused into patients.

Patients who receive "massive transfusion" of Whole Blood (Human) or Red Blood Cells (Human) have the greatest risk of developing associated pulmonary insufficiency. "Massive transfusion" is difficult to define, but generally has been interpreted as consisting of between 10 and 63 units of blood received during any one hospital stay. The average number of units of blood or blood products infused in most patients who develop pulmonary insufficiency tends to be approximately 20 units during any hospitalization. Unfortunately, many complicating factors usually associated with the need for massive transfusion may also contribute to the development of pulmonary insufficiency, e.g., shock,

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CLINICAL GUIDELINES

over hydration, embolism, and trauma. Thus, the actual role of microaggregates in producing pulmonary pathology remains to be clearly defined.⁸

The microaggregate blood filters are most effective in removing particulate matter from Whole Blood (Human) and Red Blood Cells (Human) that are greater than seven days old. They have also been found effective when transfusing Frozen Blood (Human) Deglycerolized, Leukocyte Poor Blood (Human), and Fresh Frozen Plasma (Human). Other plasma derivatives are not affected due to the absence of significant microaggregates in these fractionated preparations. These filters should not be used for blood components containing platelets, granulocytes, or cryoprecipitate as these filters will affect the optimal therapeutic benefit of these products. Special blood component filter administration sets are commercially available for this use or fresh blood filters may be used if the former are not readily available.

All commercial microaggregate filters currently available appear to be effective in removing particles of at least 40 microns or greater in size. These filters also effectively remove significant quantities of platelets and leukocytes from any infused blood component. The number of times the filters can be used varies with each commercial type. Generally, between 1 and 8 units of blood may be infused through a single filter. The rate of flow is proportional to the time and pressure required to infuse each successive unit of blood and the volume of the particulate matter adhered onto the filter. The latter is dependent on the age of the blood or blood products being infused.

A problem of increased viscosity when using these filters is encountered when Red Blood Cells (Human) are infused. The addition of 50 ml of sterile physiologic saline into the Red Blood Cells (Human) being infused will increase the infusion rate and, unlike many other parenteral fluids or drugs, will not damage the red cells.⁹ This is best accomplished by using a Y-type infusion set in order to prevent re-entering the unit of blood separately to add the saline.

RECOMMENDATIONS AND GUIDELINES

1. The use of microaggregate blood filters should be determined by and be at the discretion of the attending physician after clinical assess-

ment of the condition and anticipated blood needs of each individual patient. Those who are most likely to benefit from the use of microaggregate filters include the following:

- A. Patients who receive massive, multiple unit transfusions of packed Red Blood Cells or Whole Blood during any one hospitalization. "Massive transfusion" is generally defined as being greater than 10 units during one hospitalization.
 - B. Patients undergoing cardiopulmonary bypass during which large volumes of microaggregates may enter the systemic circulation prior to pulmonary filtration.
 - C. Critically ill patients with limited pulmonary reserve who receive multiple transfusions.
2. The number of successive units of blood that can be administered through any one microaggregate filter will vary with the age of the blood units and the type of filter used. The frequency of filter changes should be determined by the flow rate factor of infusion necessary for the patient.
 3. If it is found necessary to decrease the viscosity of Red Blood Cells (Human) in order to facilitate infusion, sterile physiologic saline should be used. It is recommended that this be accomplished by a Y-type infusion set or be added directly to the unit by physicians, or nurses on special units. It should be the responsibility of those staff members who set up the filter-blood unit system on each ward to see that it functions properly.
 4. Frozen and leukocyte-poor blood contain particulate matter having HL-A antigenic specificity. The aggregates in these products may have either immediate or delayed adverse immunologic effects on select patients for whom they are intended.¹⁰ It is recommended that microaggregate filters be used when administering these products to further protect these patients from potentially immunologically hazardous substances.
 5. The volume of blood administered to infants and children is relatively the same as to an adult as is their lung mass. This factor should be taken into consideration when determining what constitutes "massive transfusion" in these patients. Blood used for exchange transfusion of infants is usually less than five days old, contains relatively few microaggregates,

and hence does not require use of microaggregate filters. However, they may be used for blood administration to these infants under clinical conditions deemed appropriate by the attending physician.

6. Since plasma derivatives, e.g., plasmanate, albumen, etc. are relatively free of microaggregates, there is no advantage in administering these products through microaggregate filters.
7. The therapeutic value of giving preparations of leukocytes or platelets depends upon the number of functional cells administered to the patients. Microaggregate filters remove significant numbers of leukocytes and platelets and should not be used for administration of these products.
8. When relatively fresh blood (less than five days old) is administered for the purpose of hemostasis, the microaggregate filters should not be used, since it removes significant numbers of platelets and hemostatically-active proteins.¹¹

SUMMARY

The risk of pulmonary insufficiency resulting from massive blood transfusion containing microaggregates has been recognized from experiences involving combat casualties and, although the precise mechanism of this phenomena is not clearly understood, a number of commercially available blood filters have been developed to remove small particulate matter that may be present in some blood products during transfusion. General guidelines for efficacious use of these filters which is dependent on the age, volume, expected therapeutic benefit and specific biological character of the blood or blood product being transfused are presented.

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SYNOPSIS OF 1975 AMENDMENT TO LAWS GOVERNING NURSING IN SOUTH CAROLINA: EXTENDED AND EXPANDED ROLES OF THE NURSE

The following synopsis of terms and responsibilities of registered nurses and licensed practical nurses is taken from the lengthy 1975 amendment to laws governing nursing in South Carolina.

I. DEFINITION OF TERMS

A. **ADDITIONAL ACTS** means those acts performed by the nurse which extend the limits of practice through a course of "special education and training."

B. The **EXTENDED ROLE OF THE REGISTERED NURSE** refers to a lengthening process to fill "perceived needs in the health care system." The authority base from which the "extended role" of the registered nurse emanates is the licensed physician, who supports the nurse in carrying out delegated functions.

C. The **CLINICAL NURSE SPECIALIST** is a registered nurse functioning as a "clinician with a high degree of knowledge, skill and competence in the practiced discipline of nursing." This nurse shall hold a Masters Degree in nursing with an emphasis in clinical nursing, and be "directly available to the public through the provisions of nursing care to clients and indirectly through guidance in planning of care with other nursing personnel." When functioning in the "extended role" (see above), the clinical nurse specialist is required to have physician support and to operate within "approved written protocols" (see below).

D. The **NURSE PRACTITIONER** is a registered nurse who has completed an advanced education program and demonstrated advanced applied knowledge and clinical skills. Such a practitioner is likewise required to have physician support and to operate within "approved written protocols."

E. **APPROVED WRITTEN PROTOCOLS** are specific statements developed collaboratively by the physician or the medical staff and the registered nurse to define procedures being delegated as "additional acts."

F. The **EXTENDED ROLE OF THE LICENSED PRACTICAL NURSE** applies to a lengthening process which would "fill perceived needs in the health care system." The authority base from which the extended role of the licensed practical nurse emanates is the registered nurse, the licensed physician, or the licensed dentist.

G. The **EXPANDED ROLE OF THE REGISTERED NURSE** means a *process of diffusion* and implies multi-directional change. "Expansion, as a process of role-change, is undertaken not only to fill perceived needs of the health care system, but also to project new components or systems of health care. The authority base for practice from which the expanded role emanates is a body of knowledge which constitutes a nurse's preparation for practice."

II. CATEGORIES OF EXTENDED AND EXPANDED ROLES FOR REGISTERED NURSES

The ten categories are listed in Table I. Successful completion of an approved course of study is required in each category. Some categories (acute care nurse practitioner, family nurse practitioner, pediatric nurse practitioner) require two years of practice after graduation from nursing school, during which there is "maximum patient contact." A Master's Degree is required of the advanced psychiatric-mental health clinical nurse specialist and of the community health clinical nurse specialist. Specific functions are as follows:

TABLE I. CATEGORIES OF NURSES
IDENTIFIED BY AMENDMENT
TO LAWS GOVERNING
NURSING

REGISTERED NURSES:

- Acute Care Nurse Practitioner
- Advanced Psychiatric Mental Health Clinical Nurse Specialist
- Certified Nurse Midwife
- Certified Registered Nurse Anesthetist
- Community Health Clinical Nurse Specialist
- Family Nurse Practitioner
- Family Planning Nurse Practitioner
- Occupational Health Nurse Practitioner
- Pediatric Nurse Practitioner
- School Nurse Practitioner

LICENSED PRACTICAL NURSES:

- “Additional acts performed by licensed practical nurses”

A. THE ACUTE CARE NURSE PRACTITIONER possesses advanced skills in assessing and monitoring acute illness in institutional settings. Such a nurse serves in an emergency room, or in the surgical, medical, coronary, or neonatal intensive care unit. Functions defined as *additional acts* requiring a specific written protocol and physician support include physical assessment of patients using inspection, auscultation, palpation and percussion; the ordering of appropriate tests; the initiation and modification of therapy such as airway management, cardiac arrhythmias, and interpretation of blood gasses; the identification and management of various categories of emergencies; and respiratory therapy.

B. THE ADVANCED PSYCHIATRIC-MENTAL HEALTH CLINICAL NURSE SPECIALIST has a high level of knowledge, skill, and competence in the area of psychiatry and mental health. She provides direct and indirect nursing care, evaluates the quality of care, carries out research in nursing intervention, and is heavily involved in teaching, consultation, and collaboration. She also acts as a change-agent (as a catalyst and/or initiator of change). The *additional act* requiring specific written protocols is the regulation or adjustment of psychotherapeutic medications.

C. THE CERTIFIED NURSE MIDWIFE may practice in partnership with a physician or group of physicians and offers care throughout the maternity cycle. The *additional acts* requiring specific protocol and physician support include evaluation of patients’ progress during the pregnancy cycle, the admission of patients in labor, the administration of medications including pudendal block anesthesia, delivery including episiotomy, and the immediate care to the newborn.

D. THE CERTIFIED REGISTERED NURSE ANESTHETIST administers anesthesia. The functions considered to be *additional acts* requiring specific protocol and physician support are the administration of anesthesia under the direction of a physician or licensed dentist and the provision of cardiopulmonary resuscitation.

E. THE COMMUNITY HEALTH CLINICAL NURSE SPECIALIST manages physical and psycho-social health-illness status of individuals, families, or groups in a variety of community settings. Functions considered to be *additional acts* requiring specific written protocols and physician support are the carrying out of physical examinations; the discrimination between normal and abnormal findings; the determination of the need for referral for further evaluation or treatment; the assumption of responsibility for ongoing health maintenance and clinical management of stable, chronically ill patients; the initiation, planning, and conduction of health clinics for routine examinations and other screening procedures; and the regulation and adjustment of medications and treatments as prescribed by a licensed physician.

F. THE FAMILY NURSE PRACTITIONER provides comprehensive, continuous, personalized care to individuals, principally in primary care settings. The focus of practice is family centered and stresses health screening, supervision of the well, and disease prevention.

Additional acts requiring specific written protocol and physician support include assumption of responsibility for clinical management including health supervision and direct care of patients with uncomplicated illness; care of patients with minor accidents; recording of health histories; comprehensive appraisal of an individual’s health status; carrying out of physical diagnosis techniques; and the use of judgment in deciding

(Continued on page 325)

EXTENDED AND EXPANDED ROLES OF THE NURSE

which patients can be served by the nurse and which should be referred to physicians for evaluation.

G. THE FAMILY PLANNING NURSE PRACTITIONER performs "acts related to family planning and human sexuality." Considered to be *additional acts* which require specific protocol and physician support are the conduction of physical examinations; the assessment of normal or abnormal findings; the initiation and modification of therapy; the management of emergency and non-emergency trauma; the management of patients using or desiring contraceptives; the management of selected conditions such as vaginitis and venereal disease; and the confirmation of pregnancies.

H. THE OCCUPATIONAL HEALTH NURSE PRACTITIONER manages physical and psycho-social health-illness status in the occupational setting. Requiring specific written protocol and physician support as *additional acts* are the conduction of physical examinations and the discrimination between normal findings on the history and physical examination and abnormal findings which require further evaluation by the company physician.

I. THE PEDIATRIC NURSE PRACTITIONER manages the health status of children, families, or child-related groups. Considered as *additional acts* requiring specific protocol and physician support are the following functions: conduction of physical examinations; ordering of appropriate diagnostic tests; discrimination between abnormal and normal findings; planning and implementation of immunization; and the management of emergency and non-emergency trauma.

J. THE SCHOOL NURSE PRACTITIONER assesses, monitors, and manages health-illness status as part of a school health program. *Additional acts* requiring specific written protocol in-

clude the conduction of physical examinations; the discrimination between normal and abnormal findings; and the determination of need for referral of children or adolescents for additional evaluation.

III. ADDITIONAL ACTS FOR THE LICENSED PRACTICAL NURSE

The following *additional acts* may be carried out by the licensed practical nurses upon demonstration of special education and confidence:

A. INTRAVENOUS INFUSION: The licensed practical nurse may insert and discontinue scalp vein and polyethylene type intravenous needles and may begin all fluids except blood, blood components, and hyperalimentation.

B. INTRAVENOUS MEDICATIONS: The selected licensed practical nurse may begin intravenous fluids with medication added and labeled by a registered nurse, pharmacist, physician, or dentist. Such a nurse may not give medications directly into the vein (intravenous push). The administration of intravenous fluids and medications by the selected licensed practical nurse shall be under the direct supervision (present and responsible) of the registered nurse, licensed physician, or licensed dentist.

C. CHARGE DUTY: The selected licensed practical nurse may function as a charge nurse in a hospital or skilled care facility under the direction and supervision of a registered nurse (on duty and in the same building).

D. ACUTE CARE UNIT (such as intensive care unit); The selected licensed practical nurse may perform some additional acts in the acute care unit under the direction of a registered nurse (present and in charge of the acute care unit), and may carry out written protocols including resuscitation, defibrillation, and monitoring under such supervision. □

COMMUNITY AND CLIENT ACCEPTANCE OF FAMILY PLANNING SERVICES IN A SUMMER BEACH ENVIRONMENT

MURRAY L. VINCENT, Ed.D.*

ROLLIN M. REEDER, B.S.**

INTRODUCTION

The delivery of family planning services has not always kept pace with scientific advancements. Ignorance, economics, politics, cultural forces, personal values, and a variety of other significant factors inhibit entry into family planning programs. Our purpose is to offer some suggestions as to how family planning care can be more effective. The views expressed in the article reflect the data and conclusions gained from a health care pilot project which included the provision of family planning services.

BRIEF DESCRIPTION OF PROJECT MYRTLE

Project Myrtle was initiated by Commissioner E. Kenneth Aycock, M.D., of the South Carolina Department of Health and Environmental Control. The project has been conducted during the summers of 1975 and 1976 through the cooperation of the South Carolina Department of Health and Environmental Control and the South Carolina Commission on Alcohol and Drug Abuse (the two primary funding sources), and the College of Health and Physical Education, University of South Carolina.

Project Myrtle was initiated in response to the obvious health care needs existing in Myrtle Beach, South Carolina. Myrtle Beach is a small city of 10 to 12,000 from September to May. City officials estimate the "Grand Strand" area explodes to in excess of 200,000 people per week during the summer months. A large portion of

this population are young people. A massive concentration of alcohol and youth results in frequent sexual interactions and the consumption of alcohol and other drugs. The negative consequences of sexual activity (sexually transmitted diseases, problem pregnancies, interpersonal relationship difficulties, etc.) and alcohol and drug crises pose an added burden upon existing health care providers.

Project Myrtle was designed to provide care in the areas of (1) sexually transmitted diseases (diagnosis, treatment, education, and referral); (2) family planning services (pelvic exams, contraceptive services, pap tests, urinalysis, venereal disease diagnosis, wet preps, pregnancy tests, rubella tests, problem pregnancy counseling, education, counseling and referral); and, (3) alcohol and drug care (immediate crisis care, short term counseling, and referral).

Operating from a comfortable frame house ("Deliverance House") in the center of Myrtle Beach, the staff included two administrator-health educators, two additional health educators, part-time physicians, one venereal disease investigator, two alcohol and drug abuse counselors, two registered nurses, one family planning nurse practitioner, one laboratory technician, and four outreach workers. The staff members were primarily quite youthful, "out-of-uniform," and well trained in their counseling and relationship skills. Trust relationships were quickly established in the one-to-one personalized treatment approach, and clients of Deliverance House usually stayed and talked at length about other personal problems relating to their emotional and physical health.

Intensive staff training sessions preceded the beginning of Project Myrtle. Ongoing inservice sessions continued three times a week during the

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COMMUNITY AND CLIENT ACCEPTANCE

active phase of Project Myrtle services. Verbal and non-verbal exercises designed to create an awareness of the physical and psychic impact individuals have on others were frequently utilized. Various training techniques were used to stimulate staff growth relative to coping skills, goal assessment, and future aspirations. Communication skills were practiced by staff members in order to improve their listening and relationship skills. The “active listener” is better prepared to recognize and accept the feelings of the client’s perceptions of his situation or dilemma. Non-judgmental acceptance through keen and active listening to another tends to lower the tension-level, provides an atmosphere where additional information can be divulged, and offers an opportunity for the client to develop problem-solving steps.

Values clarification counseling methodologies were also a part of the helping skills utilized. The values clarification model is a technique whereby a counselor responds to a client’s comments in terms which help the client to consider the alternatives and consequences, to consider what one prizes in life, and to consider the actions one is taking to achieve goals.

The majority of staff members were trained and qualified health professionals. The upgrading of technical knowledge related to sexually transmitted diseases, family planning, and drugs existed throughout the project in the form of textbook assignments, lectures, films, and other traditional training techniques.

PERSONALIZED APPROACH IN FAMILY PLANNING SERVICES

Deliverance House facilities and staff were staged to look as “unofficial” as possible. The youthful staff members were casually attired regardless of the professional stature. Client evaluations indicated the casual appearance did not detract from the credibility of the staff’s competence. Taken from client evaluations (N = 218) during the summer of 1975, the responses to the following statements indicate client perceptions of the Deliverance House staff and their services.

1. Statement: “I will strongly recommend Deliverance House to my friends.”
- Responses: a) Strongly agree 93.2%
b) Moderately agree 5.3%
c) Neither agree nor disagree .9%

- d) Moderately disagree —0—
e) Strongly disagree .4%
2. Statement: “Now that you have been to Deliverance House . . .”
- Responses: a) I’m glad I came here 99.0%
b) I would have preferred going to a private physician .9%
c) I would have preferred going to the Public Health Department —0—

Friedson¹ has reported that compliance with health care regimens depends upon the patient’s perceived competence of the health professional and the degree to which the health professional took an interest in the patient. At Deliverance House, 98% reported the staff was competent, and 99% stated that the staff was interested in helping them. There is no reason to believe strict health care delivery protocol cannot exist when health professionals shed their “traditional” uniforms. Therefore, the authors feel this outward casual appearance of the facility and the staff was advantageous in attracting clients.

Clients entering Deliverance House were routed through the health educator, to the laboratory technician, to the family planning nurse practitioner, to the physician if necessary, and back to the health educator. Therefore, the staff member spending the majority of time with the client was the health educator. This personal, one-to-one contact gave the educator-counselor an opportunity to provide information and services, establish a trust relationship, and relate to the individual needs and concerns of each client. The client then felt secure enough to ask questions and pursue specific areas of interest. The relevant point is the personalized service provided by a specific individual with a client during her stay. Client recognition that a staff person had a special interest in her/him as a person added to the effectiveness of the entire family planning routine. Very definite educational components and counseling procedures were initiated and provided by the health educator, however, the site of such sessions could be chosen by the client. If a client felt more comfortable on the porch, in the educational materials room, or on the floor of the living room, the choice remained in the hands of the health consumer. Such freedom added to the comfort of the client without diminishing the quality of health care.

PROFESSIONAL QUALIFICATIONS FOR FAMILY PLANNING SERVICES

What professional qualifications are necessary in providing health care services? This question is philosophical and under study by all concerned with improving health care delivery. Medical doctors have been very protective of their profession and frequently rebel against anyone else interfering in the health care arena. The unavailability of medical doctors, however, results in many individuals being deprived of health care. Professional protectiveness is not only confined to medical doctors. Nurses likewise have been concerned about other types of health professionals infringing upon their territorial rights.

Two inroads into professional territorial rights existed in this project. The family planning nurse practitioner and the two registered nurses performed duties considered by some doctors to be reserved for medical doctors only. The nurses administered pelvic exams, collected specimens for testing, and recorded their observations of the client's condition. The family planning nurse practitioner also prescribed oral contraceptives and medication for vaginal disorders, and inserted intrauterine devices. "Standing orders" for medication and contraceptive means were on file from the physician. These standing orders were utilized upon specific laboratory results and clinical evaluations of the nursing personnel. Clients were referred to the physician when the nurses recognized symptoms indicating a need for expert diagnosis and for those conditions which were outside the boundaries of standing orders. In retrospect, a family planning program can function effectively for practically all situations without physician over-the-shoulder presence when: (1) the physician assists in establishing proper diagnostic protocol for nursing personnel; (2) the physician has confidence in the laboratory procedures and staff competencies; and (3) the physician is readily available for referral when the staff recognizes the limits of their training and skills.

Health educators performed the majority of the educational and counseling functions normally conducted by nurses. Recognition of the qualities of education specialists, such as health educators, has not always been achieved. Pre- and post-visit knowledge test data indicated the appropriate knowledge components in family planning were transmitted to the clients. Health

educator-counselors were able to create situations resulting in knowledge acquisition as well as provide the framework for inquiry into other health issues of concern by the clients.

ATTRACTING PEOPLE TO THE FAMILY PLANNING PROGRAMS

A group of four high school and college students classified as outreach workers, plus, the health educators conducted an aggressive advertising program detailing the services available at Deliverance House. Community support was achieved through personal contact with significant individuals in the power structure of the community. Public service announcements on local radio and television were aired daily. Large posters were displayed in practically all restaurants in public restaurants, nightclubs, drinking establishments, and amusement centers. Bartenders were encouraged to inform their patrons. An airplane pulled aerial advertisements along the beachfront. Small flyers were handed out on the beach and in certain streets. Frisbies with a sticker detailing the services were thrown to beach dwellers. "Special event" evenings with a play and a band were provided in a local park and trailer court. Thus, many educational and public relations techniques were tried throughout the summer. Both local and transient residents of the community were made aware of the project.

CLIENTS SERVED DURING THE SUMMER

Considering the short duration of the project each summer (less than three months), Project Myrtle has offered a significant amount of service to the target population. In summer, 1975, 588 "walkins" received family planning services ranging from information, education, and counseling to full direct services. Seventy-six of these females received complete contraceptive services to include contraceptives (mainly birth control pills and intrauterine devices), pelvic exams, breast exams, pap smears, rubella tests, wet prep, urinalysis tests, tests for gonorrhea and syphilis, pregnancy tests, HCT count, problem pregnancy counseling, referral, and any other test or procedure deemed necessary. The remainder of the "walkins" received those partial services judged appropriate by the counselor, nurse, physician, and client.

COMMUNITY AND CLIENT ACCEPTANCE

The positive inroads gained during the first summer of the project were realized during the summer of 1976. From June 1 to August 28 of 1976, full family planning care was provided for 190 females — 169 choosing the oral contraceptive with 21 choosing the IUD as their contraceptive choice. In addition, 542 females were provided with family planning education and counseling while 540 males and females were involved in sessions dealing with a variety of sexuality concerns.

CONCLUSIONS

The following conclusions are suggested by the data gained thus far:

- 1) Paramount to an effective health care operation is a non-threatening environment. Allowing people the freedom to choose the time and place for health services, clients of Deliverance House overwhelmingly indicated their preference for an accessible, comfortable, "non-structured" facility.
- 2) Perceiving the youthful Deliverance House staff as "caring," nonjudgmental and "out-of-uniform," clients felt less threatened and

more receptive to the available services. The major impact was in health education. Education had a positive effect on appropriate intentions to act, e.g., intention to use a condom to prevent pregnancy.² Intentions to act have been shown to predict behavioral change; therefore, health education is crucial to achieve behavioral change.

- 3) An aggressive public relations program is crucial to this or any public service project. A dynamic advertising campaign kept this project's message in the forefront of the target population's minds at all times.
- 4) Comprehensive family planning services can be provided by health educators, nurses, paraprofessionals, and lay people when monitored carefully by physicians. □

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2. Fishbein, Martin and Ajzen, Icek. *Belief Attitude, Intention and Behavior — An Introduction to Theory and Research*. Addison-Wesley Publishing Co., Inc., Reading, Mass., 1975.

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President's Page



TO MY FELLOW PHYSICIANS:

Listed below are the legislative accomplishments of the SCMA for 1977. The officers and staff are very proud of the scoreboard. True, we did not get the whole loaf, but at least we got a few slices, and we will continue our efforts. Let me emphasize that what was enacted was the result of teamwork between our men at the legislature, Mike Ussery and Strother Pope; your Legislative Committee; the Council; the McNair legal firm — and especially Mac Singletary; the members of the SCMA who contacted their representatives; and, last, but by no means least, our friends in the legislature — to name just a few, Representatives Hunter Howard, Ernie Nunnery, and Jean Toal; Senators Hyman Rubin, and Ed Saleeby. I think it is fair to say we have begun to learn to play more effectively in the legislative arena, and the importance of one of the rules of the game — compromise.

H. 2614. Lowers the statute of limitations for medical liability from six years to three years from occurrence or three years from discovery or when it reasonably ought to have been discovered, but not to exceed six years from occurrence (or omission). The exceptions to this provision are that the period of liability begins running two years from the discovery of a foreign object and upon a minor obtaining age eighteen. Eliminates governmental and charitable immunity for all hospitals with a \$100,000 limit of liability per incident. Hospital employees, except physicians and dentists, will be immune from liability. Hospitals supported with public funds will be able to purchase insurance on a claims made basis from the State Budget and Control Board.

S. 151. Increases the Joint Underwriting Association Board to include three members of SCMA, two members of the S. C. Hospital Association, one member of the S. C. Dental Association and one consumer. There are 21 JUA Board members. S. 151 also increases SCMA representation on the Patients' Compensation Fund Board to three members, and enables it to begin operation.

S. 511. Prohibits implementation of the JUA's recent 100% assessment of all physicians and any future assessment until July 1, 1978.

S. 106. Extends expiration date of the JUA from December 31, 1977 until December 31, 1978.

H. 3006. Directs the Legislative Insurance Law Study Committee to review implementation of all provisions of the Act establishing the JUA.

H. 2796. Requires all health care providers, teachers, social workers, etc., to report, orally or otherwise, to the county Department of Social Services or law enforcement authorities any physical, or mental abuse or neglect which he believes is adversely affecting the child. Requires law enforcement officials to immediately take custody of the child if a health care provider reports that the child's safety is in danger. Provides immunity to those reporting.

H. 2389. Defines crimes of sexual assault in varying degrees and provides penalties.

H. 2494. Relates to adoption procedures and rights of adoptees. Allows adoptees to obtain non-identifying background information.

H. 2502. Allows opticians to advertise the sale of eyeglasses.

Waitus O. Tanner, M.D.
President

AUXILIARY PRESIDENT'S PAGE



The year has scarcely begun, but the Auxiliary is in full swing with plans and preparations for a great year. On May 11, we were represented at the S. C. Multi-Disciplinary Committee meeting in Columbia by Mrs. John M. Shingler, Jr., Chairman; Mrs. Wayne Brady, Mrs. Lucius M. Cline, Jr.; Mrs. Arthur LaBruce, Mrs. E. R. Barber, Mrs. Rufus H. Cain, Jr., and Mrs. William F. Luce, Jr. Other members present represented SCMA, the Department of Mental Health, DHEC, DSS, Office of Child Advocacy, and Department of Education.

The 54th Annual AMA Auxiliary Convention was held June 19-22 in San Francisco, with Mrs. Norman H. Gardner presiding. Betty was our honored guest and speaker at our membership luncheon at the SCMA Convention in Myrtle Beach. Delegates attending from the SCMA Auxiliary were Mrs. Wayne C. Brady, Mrs. R. L. Crawford, Mrs. J. Ernest Lathem, Mrs. M. Ray Gillespie, and Mrs. Rufus H. Cain, Jr.

Two nationally prominent speakers were featured at convention luncheons. William F. Buckley, Jr., founder, President, and Editor-in-chief of the *National Review*, headlined the luncheon honoring national auxiliary Past Presidents. He spoke on "Some of the Problems of Freedom." At the luncheon sponsored jointly with the AMA Council on Continuing Physician Education, Albert B. Sabin, M.D., developer of oral attenuated polio virus vaccine, discussed "Immunization."

The keynote address at the opening session was presented by Dr. Tom Haggai, minister and radio personality featured on the radio program "Values for Better Living." Business sessions included nominations for and election of the 1978 Nominating Committee, presentation of the annual budget, membership and AMA-ERF awards, an idea exchange of outstanding state projects and report of the Board of Directors. A new feature was "Open Forums" where discussions of the auxiliary's membership recruitment program and dues collection and proposed amendments to the By-Laws were held. A workshop was also held on improving communications between auxiliaries and medical societies.

Many social events were held to give members an opportunity to mix, renew old friendships and to make new friends. A tour of San Francisco and a reception honoring the 1977-1978 Presidents, AMA John H. Budd, M.D., and AMA Auxiliary Mrs. Chester L. Young, climaxed the greatest convention ever. If you did not go, you missed a great deal.

Our SCMA Auxiliary representatives will be in Chicago for the AMA-ERF Workshop, August 11-12, Project Bank and Membership Workshop, August 15-16, and the Confluence, October 9-12.

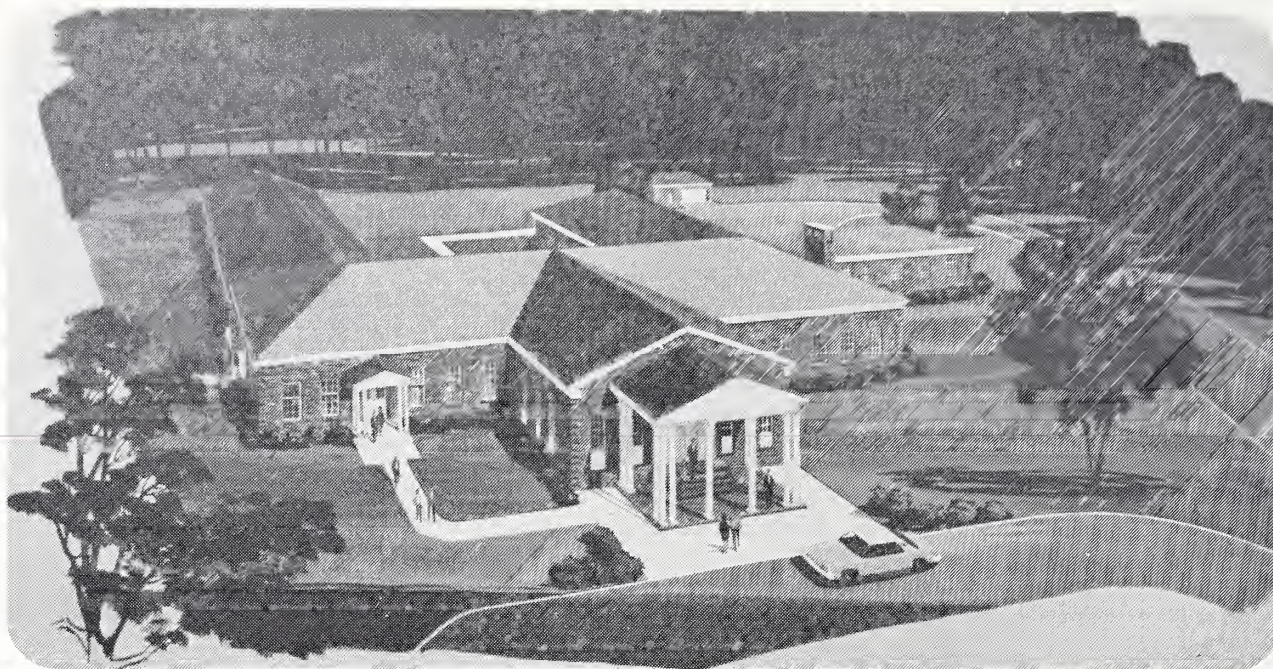
The SCMA Auxiliary Executive Fall Board Meeting will be held in Columbia, Wednesday, October 26. We will look forward to having our Advisory Council members from SCMA to meet with us and have lunch on that day.

It is our purpose to: "Assist the South Carolina Medical Association in its program to improve the quality of life through health, education, and service and to create friendliness among physicians' families."

IN UNITY — THERE IS STRENGTH.

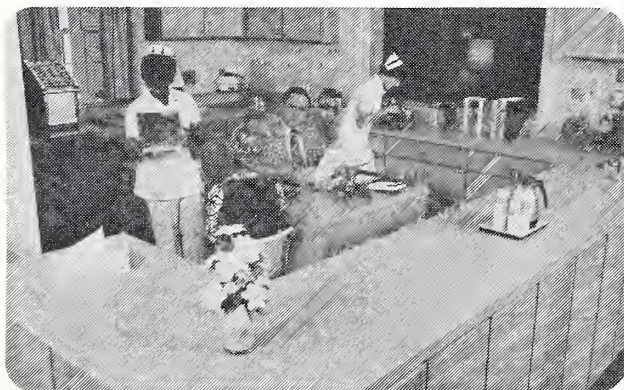
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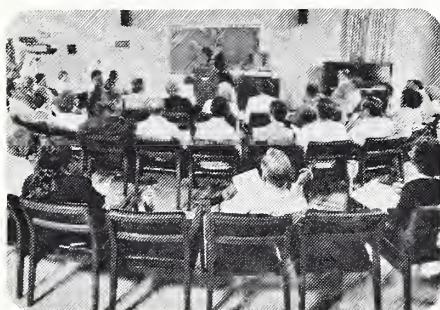
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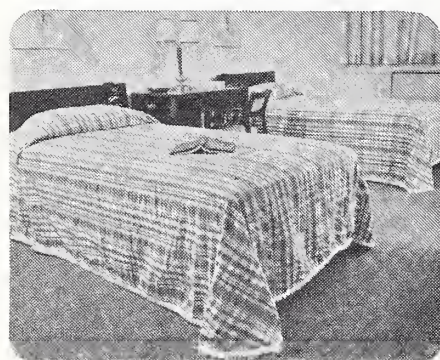
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Editorials

THE NEW NURSE AND TERRITORIAL RIGHTS

It's three o'clock in the morning and your patient is in shock. You examine him carefully and think through the steps necessary to correct lactic acidemia and to restore patency to the microvasculature. As the last of your detailed orders flows from your ball-point pen, you look around to see who will carry them out. The ward seems empty. Only vaguely aware of the perspiration on your forehead, and ignoring the gnawing epigastric (or substernal) discomfort, you are seized with an urge to flee down the corridors, paraphrasing Shakespeare: "A nurse! A nurse! My kingdom for a nurse!"

We need more nurses — few would question this desideratum. Not infrequently, one hears a further stipulation that "we need more *good old-fashioned* nurses." Nursing educators agree that we need more nurses, but do not necessarily agree that we need more of the good old-fashioned kind.¹ Rather, the nurse whom you need at 3 a.m. can do *much more* than her (or his) predecessor — she can measure the pulmonary capillary wedge pressure, interpret the arterial blood gas analysis and add positive end expiratory pressure to the mechanical respirator, adjust the constant-rate infusion pump for anticoagulant or vasopressor drug therapy, and evaluate the simultaneous urine and serum osmolalities. She will not only help you; she will, in part, *replace* you.

In this issue of *The Journal* appears a synopsis of the 1975 amendment to the Laws Governing Nursing in South Carolina. These laws and their implications have been the subject of an ongoing, productive dialogue by members of the Joint Practice Commission of the South Carolina Medical Association and the South Carolina Nurses Association, chaired by Dr. Michael C. Watson of Bamberg. It is clear, as the commission points out,² that the "day of the physician being almost solely responsible for the delivery of health care is long since past." There are *extended* and *ex-*

panded areas of nursing by which *additional acts* can be carried out; the definitions (outlined in the synopsis) are important.

Those interested in the implications of these laws might profit from the informative article, in this issue, by non-physicians Vincent and Reeder. Describing the functions of the family planning nurse practitioner in a summer beach environment, they note with candor:

"Medical doctors have been very protective of their profession and frequently rebel against anyone interfering in the health care arena. The unavailability of medical doctors, however, results in many individuals being deprived of health care. Professional protectiveness is not only confined to medical doctors. Nurses likewise have been concerned about other types of health professionals infringing upon their *territorial rights*." (italics mine.)

At this moment, with perceived shortages of both physicians and nurses, the importance of these territorial rights seems small. But when the numbers of both groups increase — as they should — what confrontations might we expect?

Vincent and Reeder assume a shortage of physicians. Let us envision an increase in physicians so that their seaside community has a surplus of eager young physicians — family practitioners, internists, pediatricians, and gynecologists — offering their services to the same clientele. Imagine their attempts to compete with the family planning nurse practitioner: she not only has a lower overhead, but also profits from free advertisement provided by bartenders, streamer-pulling airplanes, posters, frisbies, and a band! And her services (as mother points out) extend far beyond what used to be considered "family planning." Times change!

Below, Dr. William Weston of Greenville comments on the role of the new breed of nurse practitioners. Surely, the nursing profession is to

be commended for its innovations. We should also applaud the Joint Practice Commission of our medical and nurses associations; hopefully, its activities will allow us to minimize conflicts over territorial rights. None could disagree with the commission's assessment: "It is a new day and there are new opportunities on the horizon for improving the quality of care patients receive from our health care system and we should be prepared to take advantage of them."²

— CSB

NURSE PRACTITIONERS AND PHYSICIAN INVOLVEMENT

"I do not understand; I pause; I examine."

—Montaigne

This issue of the *Journal* is examining the current rules and regulations governing nursing practice in South Carolina. As physicians, we need to be informed and involved in this activity, if for no other reason than the fact that we share with nurses the major responsibility for the health care of citizens in this state. In this communication, I will provide a perspective on these rules and regulations and a commentary on the present status of nurse practitioners. The latter is based on my association over the past two years with the South Carolina Area Health Education Center Pediatric Nurse Practitioner Program in Greenville.

The 1975 Laws Governing Nursing in South Carolina authorized the State Board of Nursing to develop rules and regulations which had the approval of the medical and nursing professions. Medical input comes from two sources, board membership and appointed consultants. The physicians serving in this capacity represent a cross-section of specialties and a conglomerate of demographic health needs.

During 1976 this Board conducted public hearings on these rules and regulations throughout the state. The debate which took place was healthy and constructive. In all candor, physician participation at these hearings was meager. Let's review some of the content that came out of this process with particular emphasis on the effect that it has upon physicians. All nurse practitioners are required to have a physician-preceptor and to operate within written protocols. Any nurse who performs delegated medical functions will perform them under the direction and

- ### REFERENCES
1. Campbell GS: Where are the nurses of yesteryear? (editorial). *Amer J Surg* 133: 145, 1977.
 2. Joint Practice Commission of the South Carolina Nursing Association and the South Carolina Medical Association: Recent changes in the role and practice of the nurse (draft statement).

supervision of a licensed physician. With reference to the delivery of professional nursing services, it is true that this activity may be pursued in a dependent or an independent manner. The intent is clearly stated — to fill the perceived gaps in health care systems as well as to plan for new components for delivering health care. If the nurse becomes an independent practitioner, there are specific criteria which each must meet, the most notable being that he/she must have special education and training beyond a baccalaureate degree and he/she must appear before the Board for approval by them prior to establishing an independent practice. It should be emphasized that this form of practice provides *nursing* care and *not medical* care. To summarize, in my opinion, the State Board of Nursing for South Carolina with its physician representation and consultation has done a creditable job.

Numerically, what is the status of nurse practitioners in South Carolina? Of the 9,700 R.N.'s registered in the state, 104 of them or 1.1% indicate that they are nurse practitioners. The entire group is involved with primary care and comprises the following disciplines: family planning practitioners, 30; pediatric nurse practitioners, 29; nurse midwives, 25; family nurse practitioners, 17; and school practitioners, 3. The majority of these individuals are based in public health districts. To my knowledge, none of them are in independent nursing practice. They are interdependent health care professionals in that they provide some medical services with physician back-up.

When discussing physician extenders in health care delivery, the phrase "physician shortage" appears to be misconstrued. I prefer the interpretation put forth by the economists, i.e. physician services demanded by individuals are not available.¹ I deplore the use of physician-population ratios because they do not adequately represent either the productivity of physician services or the effective consumer demand. Have some politicians in South Carolina not been guilty of extreme naivete in concluding that the only way to increase physician services is to increase the number of physicians? There is no question in my mind but that the nurse practitioners are a viable alternative.

What are some of the issues confronting nurse practitioners as they attempt to become an integral part of the health care delivery system in South Carolina? The list includes the following: accountability for services, proper demographic distribution and relationship with physicians.

Nurse practitioners have not yet demonstrated their productivity with patient care activities to a degree which would grant them accountability. They need to pursue the more accessible clinical problems — removing fish hooks from fingers and preventing unwanted pregnancies — if they are to achieve this goal. Given their willingness to perform these tasks and a daily patient encounter log of 20 to 25 patients, this accountability could come within several years. Because of their caring qualities, nurse practitioners will have a significant effect on the lay public's understanding and receptiveness to quality primary care.

Nurse practitioners view themselves as a "cutting-edge" minority in a profession with a proud but often suppressed history — they are determined to have a hand in their future. One of the problems confronting them is their token acceptance by physicians who are reluctant to hire them. This factor encourages them to seek institutional jobs where they will perform specialized services and probably receive higher salaries. Since most educational programs require nurse practitioners to have a preceptor arrangement with a physician and because the most accessible preceptors are in urban-metropolitan areas, it is a real challenge to avoid greater maldistribution of health care professionals. To compound the problem, educational programs are being elevated to the master's level —

a move which we think will make it more difficult to locate nurse practitioners in rural and underserved areas.

It has been my conviction for the past decade that physicians, nurses and other professionals can provide better health care to patients when they function as a coordinated team rather than as isolated practitioners. The physician's expertise resides in his ability to think and act when involved with disease entities. To paraphrase Mellinkoff, "When the patient has abdominal pain and it is not clear to the protocol or the computer whether the problem is medical, surgical or psychiatric, there was not 40 years ago, is not now, nor will be 40 years from now, any substitute for an intelligent, conscientious and well-educated physician."² The nurse practitioners with whom I have been associated concur with this statement. They also recognize that they have knowledge and skills which can greatly enhance the well-being of patients. Doctors and nurses need to work together, clinically and administratively, toward the common goal of providing improved health services.

In a recent article Rogers and Blendon described several coordinated interdisciplinary programs in which morbidity and mortality had been substantially reduced.³ In South Carolina, one county hospital system is planning to sponsor satellite clinics where nurse practitioners and back-up physicians will evolve a primary care system. There are other cooperative efforts taking place throughout the state. We should applaud these innovative approaches and trust the data from them will support our viewpoint.

— William Weston, III, M.D.
Greenville, South Carolina

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- Valuable input was provided by Kathryn R. Jeanes, P.N.C., M.S.; Katherine Nuckolls, R.N., Ph.D.; and Ruth Q. Seigler, R.N., Executive Director, State Board of Nursing.
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LETTERS TO THE EDITOR

To the Editor:

I am convinced that lives now needlessly lost due to severe systemic reactions to insect stings could be saved. How? By a greater awareness of the possibility of such fatal reactions plus knowledge of the existence of an insect sting kit. The kit is an emergency first aid measure to stave off anaphylaxis. Because of my convictions I am presently collecting and correlating data on the incidence of such fatalities.

I am especially interested in time lapse between sting and death although information concerning the following would be helpful: (1) time sequence of symptoms, (2) previous reactions to insect stings, (3) medication on hand at time of sting, (4) type of medication, (5) type of insect, (6) number of stings, and (7) estimation as to whether or not a physician or hospital emergency room could have been reached in time to avoid a fatal outcome.

Thank you.

Claude A. Frazier, M.D.
4-C Doctors Park
Asheville, N. C. 28801

S. C. DERMATOLOGICAL ASSOCIATION ANNUAL MEETING



The South Carolina Dermatological Association installed new officers during its annual meeting held in conjunction with the South Carolina Medical Association meeting at Myrtle Beach. Dr. A. M. Robinson of Columbia was named President and Dr. Fred McElveen, Secretary-Treasurer.

Seminars were conducted by Dr. Alexander Fisher, Clinical Professor of Dermatology, New York University Postgraduate Medical School; Dr. Ray O. Noojin, Professor and

Chairman of Dermatology, University of Alabama Medical School, and Dr. Charles David Graber, Professor of Microbiology and Immunology, Medical University of South Carolina.

Pictured left to right: Incoming Officers, Dr. Fred McElveen, Dr. A. M. Robinson; outgoing officers, Dr. Roy Nickles and Dr. William Tate.

PHYSICIAN RECRUITMENT/PLACEMENT

The following physicians are actively seeking practice appointments in South Carolina:

FAMILY PRACTICE — Age, 31. Bowman Gray Univ., Winston-Salem, N. C., 1973. Residency, Lancaster General Hospital, Lancaster, Pennsylvania, 1974-1976. Licensed in Pennsylvania. Board certified, Family Practice, 1977-1983. Presently serving in U. S. Army, 8/76-8/78. Interested in single or multi-specialty group, or partnership type of practice. Prefers medium-sized community near the ocean. First year income — \$50,000. Available 8/78.

OB/GYN — Age, 31. Bowman Gray Med. School, Winston-Salem, N. C., 1972. Residency, Univ. of Colorado Med. Center, Denver, Colorado, 6/73-7/76. Licensed in Colorado and S. C. Board certified. Board eligible. Currently serving in U. S. Navy, 76-78. Interested in partnership, single-specialty group or solo type practice in large metropolitan area. Prefers Low Country. Salary open. Available immediately.

UROLOGY — Age, 31. State University of N. Y., Syracuse, N. Y., 1972. Residency, St. Joseph's Health

Center, Syracuse, N. Y., 1973-1974; N. J. College of Medicine, Newark, N. J. Licensed in N. Y. & N. J. Board certified and eligible. Interested in partnership, multi-specialty or solo type practice in large metropolitan area. Salary open. Available 7/77.

OTOLARYNGOLOGY — Age, 31. Tulane Medical School, New Orleans, La., 1971. Intern., St. Luke's Hospital, Chicago, Illinois, 6/71-6/72. Residency, Ohio State Univ. Hospitals, Columbus, Ohio, 7/72-6/73 & 7/74-6/76. Fellow, Riverside Meth. Hospital, Columbus, Ohio, 7/73-6/74, Gen. Surgery. Licensed in three states. Board certified. Presently serving in U. S. Army, 7/76-7/78. Seeking single-specialty group, partnership or solo type of practice in community of 25,000+. No preference as to area of state. Salary open. Available 7/78.

If interested in any of these physicians or seeking a physician to join your practice, contact:

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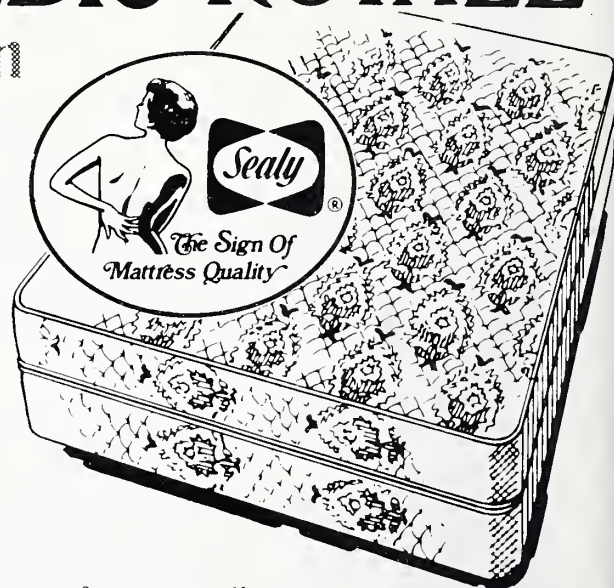
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MEETING ANNOUNCEMENTS

The Georgia Lung, Thoracic and Allergy Associations, in conjunction with the Medical Association of Georgia, is sponsoring a one day symposium entitled, "Workshop on the Practical Aspects in the Diagnosis and Management of Asthma." The symposium will be held November 17, 1977 at the Omni International Hotel, Atlanta, Georgia. For further information, contact Betty Rafshoon, Georgia Lung Association, 1383 Spring Street, Atlanta, Georgia 30309.

* * *

The 1977 Mid-Winter Meeting of the South Carolina Medical Association will be held in Spartanburg, South Carolina at the Sheraton Hotel, November 4-6, 1977. Hosting the meeting will be the Spartanburg County Medical Society, Sidney Fulmer, M.D., President.

* * *

The Southeastern Occupational Health Conference meets at the Great Smokies Hilton,

Asheville, North Carolina, September 14-15, 1977. For detailed information, write: Program Chairman, S. E. Occupational Health Conference, Box 21372, Columbia, South Carolina 29221.

* * *

A Pediatric Orthopedic Conference will be held October 20-22, 1977 at the Sheraton Hotel in Gatlinburg, Tennessee. For complete information, write Dr. Harvey L. Goodman, Director, Continuing Medical Education, University of Tennessee Center for the Health Sciences, 1925 Alcoa Highway, Knoxville, Tennessee 37920.

* * *

The Annual Otolaryngologic Assembly of 1977 will be held September 10-16, 1977 in the Ear and Eye Infirmary of the University of Illinois Hospital. The program is designed to bring to specialists current information in medical and surgical otorhinolaryngology. Direct inquiries to: Otolaryngology, 1855 W. Taylor Street, Chicago, Illinois 60612.

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We encourage original articles of potential benefit and interest to the members of the South Carolina Medical Association; priorities for publication are indicated in the January 1977 issues of The Journal. Contributions (of approximately 8 typewritten pages), containing relatively few, well-selected references, are preferred. References should be cited in the text in superscript, e.g., “Bone and colleagues² ...”, and should conform to the following style: “2. Bone, RC, Francis, PB, Pierce, AK: Intravascular coagulation associated with adult respiratory distress syndrome. Amer J Med 61: 585-589, 1976.” Ordinarily, publication of four illustrations or the equivalent will be paid for by The Journal. Authors may assume cost of additional figures.

Manuscripts should be typewritten and double-spaced. The original and one copy should be submitted. A third copy should be retained by the author for use in proofing. Reprints will be made available by the publisher at established rates.



OF THE SOUTH CAROLINA MEDICAL ASSOCIATION

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COMPUTED TOMOGRAPHY: SOME CLINICAL, TECHNICAL AND HEALTH PLANNING CONSIDERATIONS

G. DOUGLAS HUNGERFORD, M.B., B.S., D.D.R., M.R.A.C.R.*

PAUL ROSS, M.B., B.S.*

In October 1971, clinical trials of a prototype computed tomography (CT) scanner were quietly begun at the Atkinson Morely's Hospital in London, England. The first report of the results electrified an audience at the annual congress of the British Institute of Radiology in April 1972, and since then it has become clear that CT will have an important effect on health care and health planning. It is therefore appropriate that the present status of CT should be reviewed and that some aspects of its future technical development, clinical use, and community health planning requirements should be considered.

CLINICAL APPLICATION

The first CT scanners were designed to study the head, and millions of brain scans have now been done world-wide. CT has proved to be very effective in the diagnosis of cerebral tumours, infarcts, arteriovenous malformations, atrophy, hematomas and other abnormalities. It is partially replacing other types of investigation, and a study of 16 institutions¹ showed a reduction of 65% for pneumoencephalograms, 20% for cerebral angiograms, and 35% for radionuclide brain

scans. At the Mayo Clinic one-fourth of all neurological cases now have a CT scan.² Many conditions can be evaluated solely by CT and at our institution it is now unusual to need other radiological investigations (apart from skull x-rays) for head trauma, nonspecific headache and benign intracranial hypertension. CT alone suffices in many cases of dementia, epilepsy and cerebral metastatic tumour.

In our department, CT has been 100% accurate in detecting intracerebral and subdural hematomas. Ambrose et al³ report 96% accuracy in detecting cerebral tumours. CT is also 100% accurate in showing hydrocephalus and cerebral atrophy. Its accuracy in detecting infarcts is somewhat less, particularly in early stages of the disease, and it likewise occasionally fails to show an arteriovenous malformation. In certain neurological diseases, such as multiple sclerosis, it usually shows no abnormality.

So essential has CT become in the diagnosis and management of neurological disorders that it is difficult to imagine how a neuroradiologist, neurosurgeon, or neurologist could now practice without access to a CT scanner. It is anticipated that within a few years the American College of Radiology will only recognize those residency training programs which have CT equipment in their department, and similar requirements will

* Diagnostic Radiology Department, Medical University of South Carolina, 80 Barre Street, Charleston, South Carolina 29401

probably apply for neurology and neurosurgery programs.

Experience with whole-body CT scanning (CBT) is more limited as the first such machine was developed in February 1974. The impact of body CT scanning is less dramatic than brain scanning because other techniques such as ultrasound are quite successful in imaging many organs. Thus the usefulness of CBT is currently under evaluation, but at the International CT Symposium in April 1977 various centers reported promising results in disorders of the lung and chest wall, liver, spleen, kidney, pancreas, biliary tree, adrenal, uterus, ovaries, bladder, the extremities, flat bones, and spinal column. Increasingly, contrast agents are being used, for example by surrounding the spinal cord with metrizamide, filling the duodenum with gastrografin, or infusing intravenous contrast agents. Already, for some patients, CT has replaced conventional lung tomography in the search for lung metastases as it has proved to be more accurate. It is now clear that CT will challenge, and probably replace, ultrasound in the diagnosis of many abdominal disorders and it is only a matter of time before useful images of the heart are obtained.

TECHNICAL DEVELOPMENTS

There are now fifteen manufacturers of CT equipment and technical improvement has been rapid. Whereas the first machine needed 4½ minutes to perform one pair of brain scans, the fastest machine currently available can complete a scan in two seconds and the same machine can scan both the head and the body. Due to changes in the computers and in machine design, resolution has greatly improved. The present whole-body scanners produce high quality brain images which are superior to those originally obtained with dedicated head scanners.

The initial rapid rate of development has now leveled off and no further major changes in design are expected for at least two or three years. Using the present one-motion rotary gantry, scanning times of about 0.5 seconds should be possible and more powerful computers will allow calculation of the results within several seconds of completing the scan. For the next two or three years therefore, improvements will be mainly limited to the computers and computer programs, allowing quicker and more flexible use of

the machine and improved image display. Resolution of the order of 1mm is currently available and some improvement will be seen, especially if high-dose tightly-collimated scans, carefully limited to the region of interest, are done. However, the advantage of CT is its exquisite resolution of tissues of only slightly different density, and the high degree of spatial resolution which is available with conventional radiology will not be achieved with CT in the foreseeable future.

The ability to study moving structures with CT will be an important advance, and present research is directed along two lines: (1) gated images, in which a repetitive physiological cycle triggers the machine at the same point in each cycle. Thus the EKG can be used to trigger the beam when studying the heart, and by following the heart through a number of cycles an image of the heart in each phase of its cycle can be constructed. (2) very fast scan times, of the order of milli-seconds. It seems likely that such machines will be developed within three to five years using electronic techniques which eliminate the need for a mechanical rotary motion. Such a scanner could "stop" the motion of almost any body organ.

Some manufacturers offer flexible formats which allow two or more scanners to work in combination with a central shared computer, thus reducing cost. Successful trials of phone-line transmission of CT images have been conducted⁴ allowing the radiologist to review at his home or office scans which were done in the CT laboratory.

Computer techniques now allow reconstruction of images in any plane using raw data acquired from an axial scan. This method, while promising, requires extra scans and extra radiation.

RADIATION DOSE

The first cranial CT machine delivered relatively low doses of 1-2.5 rads per examination, approximately the same as a skull radiograph series. However, newer machines capable of greater resolution and faster scans may deliver 20 rads or more for a single examination of either the head or the body, and patient dose is an important consideration, especially if repeated scans are necessary. A trade-off between resolution and radiation dose is inherent in CT, and a gain of two in resolution requires an eightfold increase

COMPUTED TOMOGRAPHY

in dose.⁵ Likewise, greater resolution can be obtained by scanning thinner slices, but more slices are then required to scan the whole object. In effect, CT now often delivers radiation doses which are comparable to those of angiography or polytomography of the same part.

COST-BENEFITS OF CT

The medical benefits of cranial CT are now established while the role of body CT is the subject of intensive research. So far, however, there have been few studies of cost-benefit or cost-effectiveness. Due to the high capital costs, CT is expensive, the average charge in the U. S. in December 1976 being \$292 for a head scan done with enhancement.¹ One analysis of cost-benefit⁶ has shown that there are potential savings if those hospital admissions which are prevented or shortened by CT result in the closure of wards, or fewer hospital beds. However, CT itself generates hospital admissions, and because it is painless and safe it is more readily utilized than tests such as angiography. There seems little doubt that it will add substantially to the total cost of health care unless current charges per scan are greatly reduced. Several manufacturers were questioned by the authors and none foresees a reduction in the cost of CT scanners in the next few years. Current machines, some of which cost more than \$700,000, are twice the price of the first scanner, and there has been a steady upward trend in prices.

HEALTH PLANNING CONSIDERATIONS

How many machines? Where should they be? Who should control them? These difficult questions must be answered soon because of the great cost and rapid diffusion of CT technology.

For cranial CT, estimates of the number of scanners needed range from one machine per 100,000 persons¹ to one per 750,000.⁷ Some states have set guidelines based on population — e.g. one per 500,000 (Alabama) and one per 225,000 (Colorado). Others have developed a formula based on the existing neuroradiology case load and requiring that the hospital have a properly qualified neuroradiologist, and active neurosurgical and neurological units.^{10, 11, 12} At present only a tentative estimate of the need for body scanners can be formulated and the figure of one machine per 200,000 persons has been suggested.¹ Based on present criteria the com-

bined need for both head and body scanners has been estimated at a minimum of one per 200,000 and a maximum of one per 90,000.¹ Using the minimum figure, South Carolina would eventually need 14 scanners and the U. S. as a whole 1060. These estimates assume that each scanner can perform 3,000 scans annually, but the recent faster scanners which can probably perform twice this number of scans would halve the number of machines needed.

By March, 1977, an estimated 460 scanners had been installed in the U. S.⁸ and the Office of Technology Assessment estimates that there will be 2,500 by 1980.⁹ South Carolina currently has three scanners in operation, three more awaiting installation, and plans for a seventh machine. There is a wide disparity between different states in the population per scanner ranging from one per 3,644,000 to one per 271,000 in July 1976.⁹ South Carolina is fairly close to the present national average of 1 per 460,000.

There is currently no strict control over the siting of CT scanners. The certificate-of-need regulations which require State approval to purchase equipment costing more than \$100,000 apply essentially to public institutions, and do not affect purchase by the private sector. Because of the cost, some form of regulation will probably be almost universal within a few years and a number of states have already formulated guidelines for the distribution and utilization of CT scanners. At the moment, South Carolina has no such guidelines, but the matter is under review.

Four of the six machines in South Carolina are or will be in public hospitals, including two at the Medical University, and the other two will be in private hospitals. There will be three head scanners and three whole-body scanners. It would seem appropriate that any scanners purchased in the future should be of the whole-body type since these can also perform head scans, and manufacturers report that the great majority of the new installations are whole-body machines.

There has only been one survey which discusses the control of CT equipment.¹³ All 140 operating CT installations in the U. S. were surveyed in January 1976 and replies were obtained from 98. Radiologists were responsible for 92 and neurologists and neurosurgeons for six. It would seem logical that CT, which is an imaging modality using ionising radiation, should be the re-

COMPUTED TOMOGRAPHY

sponsibility of radiologists whose training and expertise encompass both these areas, and whose day-to-day work is already spent entirely in this field. In recognition of this fact, the British government assigned control of the original developmental and clinical work relating to CT to a radiologist.¹⁴ Furthermore, this arrangement prevents self-referral, and thereby eliminates one potential source of unnecessary examinations.

Much confusion could arise if each hospital department assumed partial responsibility for the operation of a CT scanner, a situation analogous to that in which all barium examinations were done by the gastroenterology section, urograms by the urologist, chest x-rays by the thoracic division, and skull x-rays by neurosurgery.

CONCLUSIONS

Computed tomography will occupy an increasingly important place in medical practice and within a few years most organs, even the heart, will be clearly shown.

Fundamental decisions regarding the number and placement of CT scanners have yet to be made in most states including South Carolina, but the great cost of CT technology makes these decisions urgent. The radiation dose has increased along with increasing sophistication of the machines, and it is now sometimes a limiting factor in performance and utilization. Nevertheless, despite some problems associated with its introduction, CT is the most significant advance in medical diagnostic imaging in recent decades

and the future will reveal many new and exciting applications, resulting in improved patient care. □

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SEX INFLUENCES ON ATTITUDES DURING HOSPITALIZATION

DAVID B. MARCOTTE, M.D.*

WILLIAM R. DUBIN**

DAN LURIE, Ph.D.***

The gender of a patient can influence expectations of hospitalization and attitudes during hospitalization. Male patients are assumed to feel threatened by the enforced dependent-passive role of bed patient status on medical services. The dependency associated with psychiatric hospitalization may contribute to the preponderance of female patients in both state and private psychiatric hospitals.¹ Conflicting findings concerning gender differences in attitude toward psychiatric hospitalization are reported.^{2, 3, 4}

Variables such as social class, degree of education, and psychological mindedness are influential factors in differences of patient attitudes toward psychiatric hospitalization.^{3, 5, 6, 7} Unfortunately, in all studies, patient attitudes were surveyed early in hospitalization, usually within the first two days. No attempt was made to measure possible change in attitude during hospitalization.

Though Linn⁶ found no statistically significant differences between male and female attitudes, he states that "women were not as likely to see hospitalization as beneficial," while "males were more likely to hold favorable orientations toward hospitalization."

Jones³ found that males tended to be more negative toward hospitalization than females. The fact that more males were involuntary admissions and that wards were locked and gender-segregated probably influenced these findings.⁸

Pokorny¹ found significant gender differences in observer ratings of patients in state institutions. Female patients were rated as having more severe mental distortion, depression, manic excitement, and withdrawal than male patients. They explain these differences with reference to selective factors influencing admission to state hospitals, but they ignore the possible effect of gender bias in the examining male physicians.

The study populations of investigations of gender differences in patient attitudes differ widely on such points as committed vs. voluntary status, closed vs. open ward, and segregation of patients by gender. The gender of staff in state institutions is also a variable, in that female wards are staffed by female personnel, while male wards are staffed by both male and female attendants.

PURPOSE OF THE STUDY

Since conflicting data concerning gender differences in patient attitudes during hospitalization are reported in the literature, the authors conducted this study in a setting which permitted control of some variables operative in previous studies. Influences of gender segregation, gender differences among staff, locked vs. open ward status, and voluntary vs. involuntary status have been neutralized. It was hypothesized that male patients would hold more negative at-

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titudes toward psychiatric hospitalization and would maintain these negative attitudes throughout hospitalization than females.

METHODS AND SETTING

A 16-question attitudinal survey was devised to rate views toward hospitalization, staff members, and various therapeutic activities.*

This study was conducted in a 26-bed, gender-integrated university psychiatric ward. All patients live in a community setting, taking much responsibility for their own needs. The staff-patient ratio is 2:1, with a preponderance of female personnel in the same ratio.

All patients are admitted voluntarily and may not be held against their consent. Selective factors of admission include a wide variation in age range and diagnostic category, as well as socioeconomic level.

One of the authors administered the questionnaire weekly to all consecutive admissions over a period of 16 weeks. Ninety-eight per cent return of the questionnaire was obtained without coercion.

RESULTS

Our survey includes 35 female and 35 male inpatients. No differences in age or diagnosis were found when male and female patients were compared.

The nominal responses to the questionnaire were transcribed into integers ranging from -4 (most negative attitude) to +4 (most positive attitude). For each question the average response was calculated for each gender. No statistically significant differences are noted; however, trends of differential attitudes could be seen which confirm Linn's findings.⁶

Males revealed more positive attitudes on questions reflecting attitudes toward the hospital, unit, their treatment and the opinion that others will view them more positively after discharge. Males felt that physicians, nurses, and medical students held more favorable attitudes towards them than did females.

Females responded more favorably to family visits, and felt more strongly that their lives had changed since hospitalization than did males.

Analysis of our data reveals marked changes in patient attitudes between the first and second

weeks and during the last week of hospitalization.

When attitudinal change as a process of hospitalization is examined, males develop more positive attitudes toward the hospital, as well as a growing feeling that staff members held more favorable attitudes toward them. Females did not display this trend.

DISCUSSION

No statistically significant gender differences in attitudes about inpatient psychiatric hospitalization were demonstrated. The finding that males tend to view hospitalization and hospital staff more favorably than females contradicted our hypothesis that they would hold more negative attitudes.

Our results further indicate that attitudinal surveys conducted during the first week of hospitalization,^{6,3} are likely to give information that does not reflect accurately attitudes prevailing throughout hospitalization. The first and last week of hospitalization is a time of marked fluctuation in attitude. In general, attitudinal changes at this time do not show a trend toward either more or less favorable views of hospitalization.

One possible explanation for the attitudinal similarity of both genders toward hospitalization is the neutralization of such variables as gender differences in staff, voluntary vs. involuntary status, locked vs. open unit, and segregation of patients by gender. Another possibility is that a simple attitude questionnaire is not sufficiently discreet to elicit differential gender attitudes or to record unconscious or projected attitudes.

The selective factors operant in admission to psychiatric facilities may be an important uncontrolled variable. More passive-dependent males may be admitted; such persons would probably react less negatively to dependent circumstances and would therefore hold more positive attitudes toward the hospital and staff. Conversely, more assertive, critical females may be referred for psychiatric hospitalization. The possibility exists that persons who do not fit our cultural expectations may be more readily referred to psychiatric facilities and therefore neutralize real gender differences in attitude toward hospitalization.

Attitudes about hospitalization are important considerations in the therapeutic regimen of a patient and influence cooperation in the treat-

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ment plan. Attitudes influence patient outcome in *all* medical settings. Further attitudinal studies are needed in other medical settings to assess the impact of gender attitudes on patient outcome.

SUMMARY

1. An easily administered attitudinal survey was used to sample patient attitudes throughout psychiatric hospitalization. Changes in patient attitude occurred soon after admission, stabilized and then changed again late in the hospitalization.


2. Males held favorable views toward staff and most aspects of hospitalization while females reported more change in themselves during hospitalization.

3. The setting for the study neutralized variables such as gender difference in staff, segregation of patients by gender, and involuntary status, operant in previous studies.

4. The uncontrolled variable of admission selection process may influence the similarities in male and female attitudes about hospitalization in psychiatric facilities. □

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"DEATH WITH DIGNITY" LEGISLATION IN SOUTH CAROLINA: AN APPRAISAL

TERRENCE F. ACKERMAN, Ph.D.*

South Carolina recently became a member of the growing list of states, now nearly forty in all, presently considering "death with dignity" legislation. The South Carolina proposal, entitled the "Natural Death Act," is intended to allow "an adult to make a written directive instructing his physician to withhold or withdraw life-sustaining procedures in the event of a terminal condition." I believe that such legislation is a response to serious social and medical concerns. But I maintain that the current proposal stumbles in its attempt to meet these needs. I explain below the ways in which it is faulty, and I briefly sketch an alternative approach.

The major provisions of the current proposal are as follows:

1. It allows the citizen of South Carolina to sign a form letter (entitled a "Directive to Physicians") which instructs his physician to withdraw or withhold life-sustaining procedures in the event he is in a "terminal condition" *and* his death is "imminent" whether or not life-sustaining procedures are employed. A "terminal condition" is defined as one which will produce death whether or not life-sustaining procedures are used. "Imminency" of death is not defined. The presence of a "terminal condition" must be verified by two physicians.

2. If a patient signs or *re-signs* the directive *after* being certified to have entered a "terminal condition," then the attending physician must act upon his directive or transfer the patient to a physician who will. By contrast, if the patient is not able to re-sign the directive after entering a "terminal condition," the physician is to decide

"whether the totality of circumstances . . . justify effectuating the directive" signed prior to the onset of the "terminal condition."

3. The attending physician is not required to effect the discontinuation of treatment if this action is inconsistent with his moral beliefs. However, if he fails to act upon a patient's directive *and* fails to take the steps necessary to transfer him to a physician who will, then he shall be deemed to have engaged in "unprofessional conduct." But under no circumstance is the physician subject to criminal prosecution, provided he does not engage in any attempt to conceal or forge a "Directive to Physicians."

I believe that there are three important problems which this proposal seeks to ameliorate. First, recent medical history has seen a marked increase in the sophistication of devices and techniques that are able to sustain physical existence, but oftentimes without being able to similarly sustain the "quality of life." These new medical capabilities increase the chance that the patient who is able to make and convey choices might accept or undergo life-sustaining procedures when they are really no longer consistent with his own view of what would be beneficial and dignified. Secondly, the same medical developments have contributed to a significant proliferation of cases in which patients become permanently unable to make and convey choices, but are able to be sustained indefinitely through the use of life-support devices. (The deeply and permanently comatose patient serves as an example here.) Such cases raise the issue of who shall make treatment decisions when the patient is no longer able to make them himself. Thirdly, the difficulties already cited have produced a growing confusion in the medical profession as to

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what the legal rights and responsibilities of physicians are, particularly with respect to competent, dying patients and permanently incompetent patients, dying or non-dying.

These are the problems. How well would the present legislative proposal succeed in resolving them? With respect to the first difficulty, I believe that the present proposal only complicates the attempt of the patient who is able to make and convey his choices to ensure that life-sustaining procedures are used in a way that he finds acceptable. In explaining the shortcomings here, two preliminary points need to be made. First, it should be noted that the legal right to refuse treatment under any circumstance is *already* a well-established, judicially settled legal right. No United States court has ever forced an adult patient who has been determined to be competent to accept a treatment, provided that he does not fit into one of three exceptional categories (adult with dependent, mental patient, or prisoner). Secondly, it follows that the present proposal does not provide the competent patient with any new right to refuse treatment. Rather, it merely introduces a complicated procedure for exercising that right in a specific medical circumstance (viz., when he is in a "terminal condition" and death is "imminent").

But why, then, should a person, in anticipation of a terminal illness during which he would remain competent, bother to avail himself of the bill's provisions? It would require that he gather three witnesses, unrelated by blood and having nothing to gain from his estate, to testify to his signing of the "Directive to Physicians." It would require that he go through the same procedure *again* after he has been certified to be "terminally ill." (This would involve no small effort for many "terminally ill" patients.) It would require all this when, by contrast, the patient already has the right, when he becomes subject to a "terminal condition," to instruct his physician as to how his terminal care is to be managed!

With respect to patients who remain able to make and convey choices, I believe that what is really needed is some program aimed at *making them aware* that they have the right to refuse treatment that fails to accord with their own view of what is beneficial and dignified. Some hospitals presently provide admitted patients with a document that explains to them their right to refuse treatment. A standardized document of

this sort, presented to all patients entering hospitals in the state, might be the best way to ensure that competent patients do not undergo treatments that are incompatible with their considered desires.

The second problem which the legislative proposal addresses is that generated by the proliferation of cases of patients who are permanently unable to make and convey choices but who are able to be sustained. I believe that the present legislative proposal is helpful here insofar as it sets up a mechanism allowing persons to instruct beforehand how their final care is to be handled when they are no longer able to make and convey such choices.

However, this aspect of the proposed legislation has two serious drawbacks. The first difficulty can be approached by noting that the "Directive to Physicians" only provides instruction as to how medical treatment is to proceed when the patient becomes subject to a "terminal condition" *and* death is "imminent" whether or not life-sustaining procedures are utilized. Consequently, the provisions of the legislation do not address the problem of who should make treatment decisions with respect to a permanently incompetent patient whose death is *not* imminent whether or not life-sustaining procedures are used. Thus, for example, had Karen Quinlan lived in South Carolina and been able to sign a "Directive to Physicians" before her illness, it would not have enabled her to direct beforehand that life-sustaining treatments be discontinued in her present condition. For even though she is in a "terminal condition," she is able to be indefinitely sustained through the use of little more than high-nutrient tube-feedings (and earlier, through the use of an artificial respirator).

The latter difficulty with the bill is no small problem, since the major moral and legal perplexities arise concerning just the sort of case in which the patient's death is not "imminent" whether or not life-sustaining procedures are used. Should the deeply and permanently comatose accident or overdose victim be sustained indefinitely by the use of an artificial respirator? Who should make the decision for him? The present legislation does not address these vexing problems.

The second drawback with respect to incompetent patients is that the present proposal places the final decision concerning the stoppage

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of treatment with the attending physician in the event that the patient's disease or injury has rendered him unable to re-sign the "Directive to Physicians" after entering a "terminal condition." I think that this decision should be left to the next of kin or an agent previously designated by the patient for this purpose. The next of kin is usually more familiar with the patient's considered desires concerning such matters than is the attending physician. Besides, such decisions exceed the special medical competence of the physician and place a new, non-medical burden upon him. Finally, recent court decisions regarding incompetents (e.g., Karen Quinlan) have placed such decisions in the hands of the next of kin. The only objection here is that the next of kin might not always act in the patient's best interests. But this problem can be offset by allowing the attending physician to retain the right (as exists in pediatric cases) to petition the court for the appointment of an independent legal guardian when he believes the best interests of the patient will not be served by the stoppage of treatment.

The last problem that the present proposal seeks to address is the present confusion that exists concerning the legal rights and responsibilities of physicians with regard to the withholding or withdrawal of life-sustaining treatments. As far as it goes, the present proposal helps to clear up this confusion. The bill is particularly salutary insofar as it clears physicians, under most circumstances, of criminal and civil liability with respect to the stoppage of treatment. But since it does not address problems relating to the permanently incompetent, it does not clear up the legal morass relating to this sort of case.

Is there a more adequate legislative alternative? I believe that there is, although I can here only briefly sketch its main provisions. I suggest that it include the following points:

1. It should clearly state that competent adults possess the right to refuse any medical treatment under any circumstance, provided they do not fit into the judicially excepted categories. This recognition should be combined with the formulation of a standardized statement of patient rights,

which is to be distributed to each patient upon his admittance to a medical care facility. This is the best way to legislatively encourage the maximal participation of patients who are able to make and convey choices in the management of their own treatment.

2. It should continue to allow the citizen of South Carolina to sign a directive, similar to that included in the present proposal, which requests that life-sustaining treatments be withdrawn when he is no longer able to make and convey choices and is in a terminal condition such that death is imminent whether or not life-sustaining procedures are used. But it should also allow the citizen to appoint a designated person to make treatment decisions for him when he has become permanently incompetent but has not entered a state where death is "imminent." In addition, it should indicate that when such an agent is not appointed, then the decision-making is to fall to the next of kin. The attending physician is to retain the right to contest such decisions in court, when he believes they are not consistent with the interests of his patient.

These provisions are, I believe, the best way to manage the problems concerning the permanently incompetent noted earlier. They allow the "potentially incompetent" person maximum input into the decision-making apparatus that would take effect were he to become permanently incompetent. They set up a definite decision-making apparatus with respect to the permanently incompetent patient whose death is not "imminent." Moreover, they allow a safeguard for the patient's interests in the form of the physician's right to contest such decisions.

3. Finally, like the present proposal, the legislation should (a) protect the attending physician from criminal and civil liability when acting in accord with the terms of the proposal, and (b) ensure that he will not be required to act contrary to the dictates of his own conscience. □

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THE INFLUENZA PANDEMIC OF 1918-1919: COLUMBIA AND SOUTH CAROLINA'S RESPONSE

ALLAN D. CHARLES*

The influenza pandemic of 1918-1919 has been called by South Carolina medical historian, Dr. Joseph Waring, the "greatest medical holocaust in history."¹ In South Carolina there were an estimated 150,000 to 400,000 cases with some 4,000 to 10,000 deaths. The number of deaths from pneumonia in the state rose from 1,453 in 1917 to 6,764 in 1918, dropping the next year to 2,968.²

In the fall of 1918, the United States had been at war with Germany and Austria for a year and a half, and South Carolina contained several army camps, prominent among them Camp Jackson near Columbia. When it was first laid out in 1917, Camp Jackson had been considered a boon to local business — as indeed it was — but by September, 1918, its presence was to become more ominous. It was here that what is now known as swine flu first entered the state.

The news of war and rumors of flu were prime topics of conversation in the summer and fall of 1918, and such was the hatred of Germany at the time that many believed the disease was being deliberately spread to this country by the submarines of the heinous "Hun." One recent writer, J. E. Persico, however, believes the disease in fact originated in the American army in March, 1918, at Fort Riley, Kansas, where manure burning and a dust storm combined to spread the new virus. Troops from Ft. Riley departed for France soon after, and the disease was falsely reported as having originated on the continent of Europe. The name "Spanish flu" became current. Wherever it came from, however, its toll of 548,452 American lives was nearly ten times the loss of Americans in the trenches of France and Belgium.³

The flu struck first at the army camps, hitting Camp Devins, Massachusetts, on September 12, 1918. From there it progressed due south in rapid order. It was in Camp Upton, Long Island,

on the 13th, reached Camp Lee, Virginia, on the 17th, and broke out in Camp Jackson the next day. Strangely enough, Camp Wadsworth at Spartanburg was not hit until October 11, one of the last three camps in the country to be struck.⁴

The disease hit like a flood. There was some warning, but when the waters started rising around them, the people's reaction was one of disbelief. Finally the deluge would subside, and then move on to inundate another section.

Dr. J. H. Gibbs, editor of the South Carolina Medical Association's *Journal*, described his observations on the flu:

One of the most out-standing features of this disease seems to be the venous stasis which is associated with it. Even in those cases presenting mild respiratory symptoms, there is often a marked suffusion of the skin, a dusky complexion, and a relative blanching of areas over which pressure is exerted. With the onset of pneumonia, cyanosis of the most extreme grade frequently ensues. . . . [In such cases] hydrotherapy, an abundance of fresh air, and possibly small doses of adrenalin will best serve to tone up the vaso-motor system. In many of these patients one is struck by the evidence of mechanical blockage of respiration . . . [and] expectorants were certainly indicated. Small doses of potassium iodid or ipecac might be given in the earlier stages. . . . When obtainable inhalations of oxygen should be employed. In the case of right-sided heart failure there is one remedy par excellence, phlebotomy, and its utilization should not be delayed. 500 to 600 cubic centimeters of blood can be drawn with perfect safety, there being nothing to lose and everything to gain.⁵

SOUTH CAROLINA'S STATE OF PREPARATION

Lacking today's knowledge of viruses, health authorities had to rely on an ancient line of defense — quarantine and the wearing of masks — defenses which had been widely employed in Europe in the epidemics of bubonic plague in

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1347 and after. The gauze masks of 1918 did more good, it is certain, than the masks of 1347, more having been learned about the nature of various contagions, but when the influenza voluntarily subsided in 1919, President James A. Hayne of the South Carolina Medical Association stated, "I do not know whether we are much better off than the Italians were in the seventeenth century, who ascribed influenza to the influence ["influenza" in Italian] of the stars."⁶

South Carolina had no county-level paid public health authorities. Local public health was largely a function of volunteer action by members of the resident medical community, although they sometimes styled themselves "Boards of Health." The State Board of Health was established by the General Assembly in 1879, but the state, assisted by federal aid, had to improvise local emergency public health measures, in Columbia and elsewhere, after the flu had already struck. We fought the flu as we fought the war — learning by doing. After it was all over, Dr. Charles V. Aikin of the United States Public Health Service noted that "local hysteria was prevalent" and that losses would have been much less if each county had had its own health organization. The pandemic did have a beneficial catalytic effect on subsequent improvement in public health services.

The ranks of South Carolina's medical community had been thinned by the war, and 225 of the 738 members of the South Carolina Medical Association were in the military. This was not expected to prove a problem, however, as Editor J. H. Gibbs of the *Journal of the South Carolina Medical Association* confidently asserted as the pandemic approached that clinical data showed the disease to be "identical" with the relatively mild epidemic of 1889-90. The unprecedented is, of course, virtually impossible to foresee.

PATTERNS OF DISEASE: MILITARY VERSUS CIVILIAN POPULATIONS

The military, with its emphasis on reports, left an almost daily account of total and additional flu cases for the historian, but the civilian sector, with more haphazard reporting procedures, left fewer details for posterity. On September 21, 1918, three days after the first cases at Camp Jackson, *The State* newspaper of Columbia noted that no cases of the disease had been reported in the city, but that Captain Frierich Simpson of the

USPHS had been ordered to alert and "to make cultures of all cases which develop." Meanwhile Major Frank Harrison, camp surgeon at Jackson, issued a warning to the troops: Swat flies, avoid putting anything to the lips that has touched the lips of another, avoid close conversation, avoid uncovered coughs and sneezes, and do not congregate in crowds. The last three pieces of advice are almost ludicrous when one considers the crowded conditions obtaining in a training camp and help to explain why it was more dangerous to be in a stateside camp than to be in the trenches in France.⁷

Among the civilian population the disease spread in a different pattern from that of the army camps. Beginning at the end of September the flu flowed over the state from the hills to the sea, being first reported in Newberry, Clinton, and Greenville. Then it hit the Midlands, washed over Charleston, and finally struck the Pee Dee. The pandemic subsided in the same order with the Pee Dee last to be rid of it.

COLUMBIA GRAPPLES WITH THE DISEASE

October, 1918, was the worst month in Columbia's history since General W. T. Sherman had shelled and occupied the city in February, 1865, resulting in its burning. Numerous must have been the citizens into whose lifetimes both of these horrendous events were crowded.

Being a large city, Columbia almost certainly maintained a higher ratio of physicians to population than small town and rural districts did, and in fact some civilians were hospitalized at Camp Jackson. This advantage was partially negated, however, as the city was called upon to send doctors out into the state. Secretary Hayne of the State Board of Health and Dr. Aikin of the USPHS urged President Kibler of the Columbia Medical Society to aid in detailing Columbia physicians to the Pee Dee section. Some Columbia doctors had already served in the Up-country. Over a six weeks period some 30 doctors, sponsored by the USPHS, and some 40 nurses, sponsored by the Red Cross, served stricken rural and small town areas. It is unknown how many of these were from the Columbia area, but the capital probably furnished a large share.

Columbia in 1918 boasted two real hospitals.

INFLUENZA PANDEMIC OF 1918-1919

The older one, Columbia Hospital, had about 100 beds in 1918. The other facility, Baptist Hospital, was only four years old in 1918 and probably contained fewer than 50 beds. Thus for a population nearing 37,524 in 1920, there were probably under 150 hospital beds available.⁸ This figure was not particularly relevant to sufferers of influenza only, for the era of the housecall had not yet passed, but all accounts agree that the complication of pneumonia was what was so fatal about the flu.

By October 12, Baptist and Columbia Hospitals were not only full, but it was an accomplishment that the latter facility had "been able to maintain its organization," considering that so many of the medical personnel were down sick. For the first time since the end of the Civil War, the University of South Carolina had become a hospital. The University infirmary on October 12 had 26 patients, the gymnasium held 29 more, Woodrow Hall was full of convalescing students, and 19 USC cases were in the base hospital at Camp Jackson. Classes, of course, had been suspended earlier, and the enrollment, reduced by war enlistments to 274 in 1917-18, was miniscule by today's standards.⁹ In percentage terms, the number of sick students must have been enormous.

Columbia public schools had been ordered closed on October 8. The Court of Common Pleas and later the state Supreme Court followed suit. Churches, theaters, and pool halls were ordered closed. *The State*, on October 10, reported 20 deaths at Jackson and over 2300 cases in Columbia and urged that citizens avoid Saturday shopping as that was when the farmers came to town. As late as October 5, Dr. C. E. Smith, city health officer, had maintained that "the disease is of a mild type and there is no cause for alarm," but by mid-month all pretense of official optimism was dropped. The "quarantine," a ban on all nonessential social intercourse, was in full force. The wearing of gauze masks was not mandatory for all citizens but their use was encouraged.

Many medical personnel had been stricken, and in some households all the family members were simultaneously ill leaving no one to feed and care for the family. Therefore, by the 13th, girls and women, "white and colored," willing to assist the sick were asked by the Red Cross to register. The wave of public response continued

as the management of Pacific Mills sponsored a delivery system of beef, bread, and chicken soup to aid stricken families in the mill village. As the millworkers mobilized, uptown women's clubs organized to serve not only as nurses but in child care, meal preparation, and the like. Secretary Hayne of the State Board of Health reported on the 20th that twelve volunteers (presumably black) were enrolled as nurses at the Phyllis Wheatly Center in a general effort to aid black flu sufferers. Rev. J. A. White, chairman of the "colored Red Cross," headed a motor pool whereby soup, prepared by blacks, was delivered to some forty black households daily.

For those patients not in hospitals, Eucapine, Vick's Vapo-Rub, and other patent remedies aimed their advertisements at flu victims with great success. The drug stores were reported "hard pressed," and toward the end of October, Vick's urged customers to buy "small lots only," as they could not supply the demand. There was no problem, however, as other medicines such as Hyomel were "strongly recommended for prevention of Spanish influenza," and "Snake Oil" was useful for "perhaps preventing pneumonia."

THE ALCOHOL CONTROVERSY

Quite a brouhaha was generated when certain members of the medical profession, grasping at straws, began prescribing alcohol for their patients. At this time South Carolina was dry, and the proposed 18th Amendment to the U. S. Constitution was only months short of ratification by the required three-fourths of the states. National prohibition was on the horizon. Nevertheless, Governor Manning was persuaded to release state stocks of "confiscated intoxicants" to aid in treatment of flu-related pneumonia. By October 16, the Red Cross began distribution of liquor to those having doctors' prescriptions and showing signs of incipient or developed pneumonia. The free whiskey had to be picked up in person, so it is unknown how many actual pneumonia sufferers were able to obtain the libations and relieve their pain. One can only imagine the inevitable crowds of chest-clutching malingerers who must have been turned away at any such distribution.

Heated letters to the editor of *The State* protested the spreading of "sin" by the state government, and so controversial did the practice become that the South Carolina Medical Association issued a questionnaire to Columbia physi-

cians asking their opinions. Ten responded that they strongly favored the use of alcohol in pneumonia therapy, one even calling it "essential." Four were noncommittal or did not care, and six were vehemently opposed. A currently practicing Columbia surgeon, who is familiar with many of the names of the respondents, says that most of the responses were mainly functions of the individual doctor's personal prejudices and habits regarding the use of liquor.¹⁰

OUTSIDE COLUMBIA

No part of the state escaped the ravages of the disease. Lexington County's response illustrates the pathetic status of local public health efforts in rural areas. *The State* reported on October 5:

Lexington County is now thoroughly organized under the State board of health with Dr. Karl Able of Leesville as county supervisor and Miss A. J. Hill as County public health nurse. . . . Only three other counties in the State are doing similar work. . . . Communicate with her [Miss Hill] by letter to Batesburg, her headquarters. She has no automobile so those desiring a visit will have to furnish conveyance.

The efficacy of quarantine was shown in the instance of the colleges. Some of the women's colleges in the state — Winthrop, Greenville Women's College, Lander, Converse, and Anderson — were allowed to remain open, but they were placed under strict quarantine with no one to go on or off campus. Those who left were not allowed back onto the grounds. The South Carolina Medical Association concluded: "Winthrop went on quarantine and influenza was very mild there." The Citadel, by contrast, was closed and the young men sent home. "They evidently picked up the disease on trains enroute home and not only did they suffer severely . . . but helped to spread it to their home communities."

CONCLUSIONS

The emergency showed how various organizations cooperated in the effort to save lives. The South Carolina Medical Association functioned as a sort of clearinghouse of information. The private "Council of National Defense," a war-supporting organization helped to co-ordinate efforts and contributed \$2,000 to the cause. The USPHS expended nearly \$15,000 in six weeks of

special activity. The Red Cross was always there when it was needed with money, materials, and personnel. The State Board of Health geared up, and its local boards moved closer to becoming institutionalized. The police agencies were employed in enforcing the quarantines. The War Department and the Navy Department cooperated with state and local authorities.

World War I was both a boon and a bane to efforts against the flu. A year and a half of war had set up and oiled organizational machinery which was available for civilian as well as military crises. On the other hand, the war had called away to the colors over 200 of the state's doctors. The war brought concentrations of men to the outskirts of our major cities — a likely source of contamination of the civilian population, although it cannot be shown that the flu spread from the camps to the towns initially. Finally the war covered up the entire pandemic in the public mind by coming to an end on November 11, 1918. This joyful event displaced the flu in the newspapers and very likely muted in the public consciousness the seriousness of the medical holocaust. To this day the man in the street, whether 17 or 70, does not seem to understand why the medical authorities can get so excited over just another flu bug called the swine flu. □

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Further documentation is available from author on request.

SOUTH CAROLINA MEDICAL MALPRACTICE PATIENTS' COMPENSATION FUND

The South Carolina State Legislature, in an effort to help control the rising cost of medical malpractice insurance and to provide a more suitable marketplace for commercial insurance carriers, enacted into law in June, 1976 the South Carolina Medical Malpractice Patients' Compensation Fund. As the law is presently written, this fund would be made available to all licensed health care providers in South Carolina for coverage in excess of a basic \$100,000 each occurrence and \$300,000 aggregate.

The Legislature established a twelve-member Board of Governors to develop the rules and regulations of the fund and to oversee the fund's operations. This Board of Governors has since been expanded to 13 and is presently made up of C. T. Weston, M.D., Donald G. Kilgore, Jr., M.D., J. A. Evans, Jr., M.D., Mrs. Donna Weatherholtz, Vivian Davenport, Ph.D., George Rentz, W. C. McDowell, D.M.D., Hugo M. Spitz, Lee F. Brinkely, Jr., Dace W. Jones, Jr., H. A. Schifferli, D.M.D., Henry G. Turner, Jr., and Edward Buckley. The statute called for the state's Chief Insurance Commissioner to act as Chairman of this Board of Governors.

The Act, No. 674, called for the establishment of a fund into which any licensed health care provider can pay a surcharge equal to a percentage of his basic professional medical malpractice premium. The surcharge payments are on a declining scale, with the initial payment into the fund being equal to 100% of the individual's basic medical malpractice premium. The surcharge decreases to 75% of the basic premium for the second year's payment into the fund. The third year's payment further decreases to 50% with the fourth year's surcharge being 25% of the basic medical malpractice premium. The legislators placed a maximum of \$4 million on the size of the fund. When the fund reaches the maximum limit, there will be no membership payment required from existing members or new members. Once the fund drops to a \$3.5 million level, surcharges for membership will again be imposed. These surcharges will first be placed on the members having paid no surcharge previously and also to those who have not completed

the surcharge payment scale. If additional funds are needed to bring the fund back to the \$4 million maximum, there will be a 10% surcharge for all members.

In order to protect the fund, the law allows for payments of only \$100,000 per year until the total settlement or judgment has been met. The Board of Governors can, at its discretion, increase this payment to avoid the payment of interest.

The Board of Governors of the Patients' Compensation Fund sought a fund administrator from one of the state's health professionals associations. The South Carolina Medical Association and the South Carolina Hospital Association were the only parties submitting proposals for handling the administrative functions of the fund. The Board of Governors met on June 25 and outlined the functions of the fund administrator. At the same meeting, the Board selected the South Carolina Medical Association as fund administrator, and selected July 1, 1977 as the date for the South Carolina Medical Malpractice Patients' Compensation Fund to become operative. With this decision, the Joint Underwriters' Association could no longer renew or offer for sale excess professional medical malpractice insurance after July 1, 1977.

The Patients' Compensation Fund is not an insurance company. It is a mutual fund designed for use by its members. Membership in the fund is not mandatory and is subject only to proof of a basic professional medical malpractice policy or proof of self-insurability. There are no bills sent and no premiums due the fund. Payment into the fund is voluntary and is based on the individual's basic professional medical malpractice premiums. There are no commissions paid out of fund monies. The South Carolina Medical Association is handling the administrative functions of the fund on a cost basis, not on a percentage of the total revenues received. This is being done to assure the membership of the fund the maximum benefits for the payments made.

Inquiries regarding the South Carolina Medical Malpractice Patients' Compensation Fund should be directed to the Board of Governors of the Patients' Compensation Fund or to the South Carolina Medical Association. □

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PATIENT PACKAGE INSERTS: A CONCEPT WHOSE TIME HAS COME?

The consumer's right to know is an irreversible and desirable trend of the Seventies. It extends, and properly, to a patient's right to know more about his or her prescription medications. One way, gaining favor, is through patient package inserts. Wisely-prepared and properly distributed when medically indicated, they could markedly improve patient knowledge and drug therapy—laudable goals by anyone's standards.

The PMA endorses these goals and will work with government, the health professions and consumers to achieve them.

The Advantages

The concept holds promise of benefits: better patient understanding of the product prescribed, better adherence to the treatment plan, and more awareness of possible side reactions.

Every doctor has had patients who fail to finish antibiotic regimens because they feel better. Some patients assume that if one tranquilizer or analgesic is good, two may be twice as good. Still others fail to report dizziness while on antihypertensive therapy—and so on.

Problems like these might arise less often if the patient received written information in addition to verbal instructions. Some studies suggest that patients are more receptive to such materials, and they more often understand the verbal instructions and follow them, when inserts are used.

The Disadvantages

There are also some potential problems. Obviously, the inserts must be clearly phrased, without extraneous or complex detail. How much information

is enough? How can it be kept current? Should all patients receive the same information? Should inserts be included with all drugs? Should only potential problems be listed or are patients better off with a "fair balance" presentation that describes usefulness as well as drawbacks?

These and similar questions require answers, since model inserts have yet to be properly developed and tested. Despite the need for these studies, the FDA is proceeding prematurely with inserts on selected products. We think the Congress is the only place where the matter can be given the proper legal status and direction, particularly since it represents a conceptual change in the legal, medical and social framework of the nation's prescription drug information system.

The Solution

The PMA believes that carefully-devised pilot studies of various kinds of inserts are needed. They should be developed and implemented with full participation by doctors, pharmacists, consumers, communications experts and the drug industry. Such studies will provide reliable pathways to follow, so that inserts will be useful aids to medical practice.

And particularly we think that you should be closely involved in this debate and in these studies and decisions. Otherwise, people with less experience and qualifications may control the purposes, content and use of a tool with considerable promise for improved patient care. It could make a difference in your practice tomorrow, and more importantly, in the health of your patients.



THE PHARMACEUTICAL MANUFACTURERS ASSOCIATION
1155 FIFTEENTH ST., N. W., WASHINGTON, D. C. 20005

LEAD POISONING IN SOUTH CAROLINA

NORRIS H. WHITLOCK, M.S.*

J. ROUTT REIGART, M.D.**

LAMAR E. PRIESTER, Ph.D.***

The experience of the Charleston Program for Lead Poisoning Detection in the years 1972-1975 and the South Carolina Childhood Lead Poisoning Control Program in the last year has demonstrated that lead poisoning is a problem of epidemic proportions in the Charleston Area and may be a serious problem in the older sections of the cities in other areas of this state. The purpose of this communication is to inform physicians of South Carolina about the activities and resources of this screening program.

LEAD POISONING

Although lead is commonly found in the environment around us, childhood lead poisoning is usually attributed to the ingestion of paint chips containing lead such as are found in the deteriorated housing of inner cities. Other sources may be airborne lead particles, dusting paint, high traffic areas, soil surrounding a house and eating or drinking from improperly fired earthenware.

The symptoms of lead poisoning are relatively non-specific but should be suspected in children living in older housing who exhibit CNS abnormalities as subtle as increased restlessness, irritability and poor attention span or as gross as seizures and acute encephalopathy. Symptoms also include recurring abdominal pain, particularly in association with constipation, loss of appetite and persistent vomiting.

(Supported in part by DHEW-CDC Grant No. 04-H-001021.)

* Project Director and Associate in Medicine, Dept. of Medicine, Medical University of South Carolina.

** Associate Professor, Dept. of Pediatrics, Medical University of South Carolina.

*** Commissioner, South Carolina Dept. of Health and Environmental Control.

PROGRAM BACKGROUND

Childhood lead poisoning has been recognized in the old, lower income areas of the City of Charleston for many years. Seventy children in Charleston were hospitalized with the diagnosis of lead poisoning between 1960 and 1970. There were multiple admissions (114) and 11 fatal cases among these seventy. Almost all experienced severe encephalopathic symptoms. Virtually all of these children were in the recognized peak age range of 12-48 months (90%) and most were black (86%) and residents of the older peninsular area of Charleston (71%).

These data suggest that a larger group of children experienced lead exposure. Initial epidemiologic investigations of lead poisoning in Charleston in 1970 indicate that of 187 school age children screened, 11 had clearly elevated blood lead (≥ 40 ug/dl)¹ although they were all past the usual age for childhood lead poisoning. Blood lead levels of this cohort are shown in Table 1. These data suggest they had higher levels in the past and that the lower levels include children with prior abnormal levels. The eleven children with abnormal levels were all from urban residences and ten of them were black.

A subsequent 1971 Department of Health, Education and Welfare (DHEW) survey² documented the presence of a serious problem. Of 173 black children screened from an area of old deteriorating housing, 72 (41.6%) had blood lead determinations greater than 40 ug/dl.

In 1972, the City of Charleston received a three year grant to detect high risk children in the peninsular city. This grant was administered by the Medical University of South Carolina (MUSC) and by June 1975, 4,005 children had

LEAD POISONING IN S. C.

been screened, of which 919 (23%) were considered to be experiencing potentially hazardous lead exposure. Seven hundred children from this group continue under medical surveillance and receive treatment as required. One hundred eleven children have received chelation therapy.

The identification of such a severe problem in the City of Charleston led us to consider that other populations may also be at risk of the problems associated with lead exposure. In cooperation with the South Carolina Department of Health and Environmental Control, MUSC has now organized a statewide lead poisoning detection program.

ORGANIZATION OF THE SOUTH CAROLINA PROGRAM

MUSC is the primary grant recipient from DHEW and functions as the resource facility for primary case finding and medical management. In each municipality where screening is conducted, preliminary meetings are held with local health departments. These meetings inform health department personnel about the program and project staff learn the locations of children at high risk because of age, socioeconomic status, and conditions of housing.

Following this meeting, project personnel inspect personally the areas of high risk to confirm conditions. Subsequent to this inspection,

screening clinics or door-to-door screening of children aged 1-6 years is arranged in cooperation with the local health department. At initial patient contact there is parent education about lead poisoning. Informed consent from parents is sought and basic patient information, demographic and environmental, is obtained. Fingerstick on venipuncture blood is assayed for lead, free erythrocyte porphyrins and hematocrit. All patients are classified, evaluated, and followed according to Center for Disease Control guidelines.³ When there is evidence of elevated blood lead, the child's environment is evaluated by direct inspection including x-ray fluorescence for the presence of lead. When hazardous levels are found, further education is directed to the parents of the child to reduce the hazard or the exposure. Limiting the child's ability to reach the dangerous lead source, and sweeping and dusting of lead particles is useful initially in environmental management. Subsequently efforts are made through the homeowner or landlord to accomplish a permanent abatement of the lead hazard by removal of lead based paint, permanent coverup by wallboard, panelling, etc. Such activity is accomplished in cooperation with the local health department and building inspections office. Periodic reevaluation of the environment is aimed at elimination of the lead hazard.

TABLE I

Mean Blood Lead Values (ugm/100ml) by Residence and Race, Charleston, S. C. Children ages 6-9 years, (no. of children in parentheses), 1970.

RACE	RESIDENCE		TOTAL
	URBAN	RURAL	
White	15.1 (50)	14.7 (44)	14.9 (94)
Black	33.1 (49)	17.3 (44)	25.6 (93)
TOTAL	24.0 (99)	16.0 (88)	20.2 (187)

LEAD POISONING IN S. C.

SCREENING RESULTS

The first year's screening on a statewide basis has been highly productive. As indicated in Table II, yields of positive findings have been generally in excess of national averages. The Charleston Area has remained the most productive for screening, as expected, but areas of significant yield exist in other sites studied to date.

DISCUSSION

These preliminary findings of elevated blood levels in a large number of children throughout South Carolina suggest a problem with major public health implications. Screening of children in high risk environments should continue but

should be supplemented with activities to minimize lead exposure. Such activities should include (a) education of parents and property owners about the problem and (b) regulatory action designed to eliminate exposure sources. □

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1. Weston, William III, M.D., Sandifer, S. H., M.D., and Keil, Julian E., Dr. P.H.; Medical University of South Carolina Unpublished Study, 1970.
2. Childhood Lead Poisoning — A Summary Report of a Survey in 27 Cities. DHEW Publication No. (HSM) 73-10002.
3. Increased Lead Absorption and Lead Poisoning in Young Children. A statement by the Center for Disease Control, DHEW (#00-2629), March, 1975.

TABLE II
SUMMARY OF SOUTH CAROLINA LEAD POISONING
SCREENING ACTIVITY - July 1, 1975 - June 30, 1976

LOCATION (Number Screened)	NUMBER OF POSITIVE RESULTS*		PERCENT OF POSITIVE RESULTS**
	Class IB & II	Class III & IV	
Charleston (City) (969)	242	66	31.7%
Charleston (County) (994)	132	43	17.6%
Darlington (158)	28	1	18.4%
Florence (298)	15	4	6.4%
Spartanburg (438)	42	6	11.0%
Columbia (596)	159	12	28.7%
Gaffney (128)	1	1	1.5%
Greenville (856)	160	14	20.2%
Others (19)	8	--	42.1%
TOTAL (4,456)	787	147	21%

* Positive results determined in accordance with CDC Guidelines⁽²⁾

Class Ib - PB 30-49, EP < 59
Class II - PB 30-49, EP 60-109
Class III - PB 50-79, EP 110-189
Class IV - PB > 80, EP > 190
(PB = Blood Lead; EP = Erthrocyte Porphyrin)

** Number of Positive Results (all classes) divided by number screened

President's Page



TO MY FELLOW PHYSICIANS:

IMPRESSIONS OF AMA MEETING

I would like to share with you some of my impressions of the AMA Convention in San Francisco. John Hawk will be reporting to you officially on the proceedings of the meeting in the September issue of this *Journal*.

The spectacle of a national professional gathering is always awesome to me, and especially in a great city such as San Francisco.

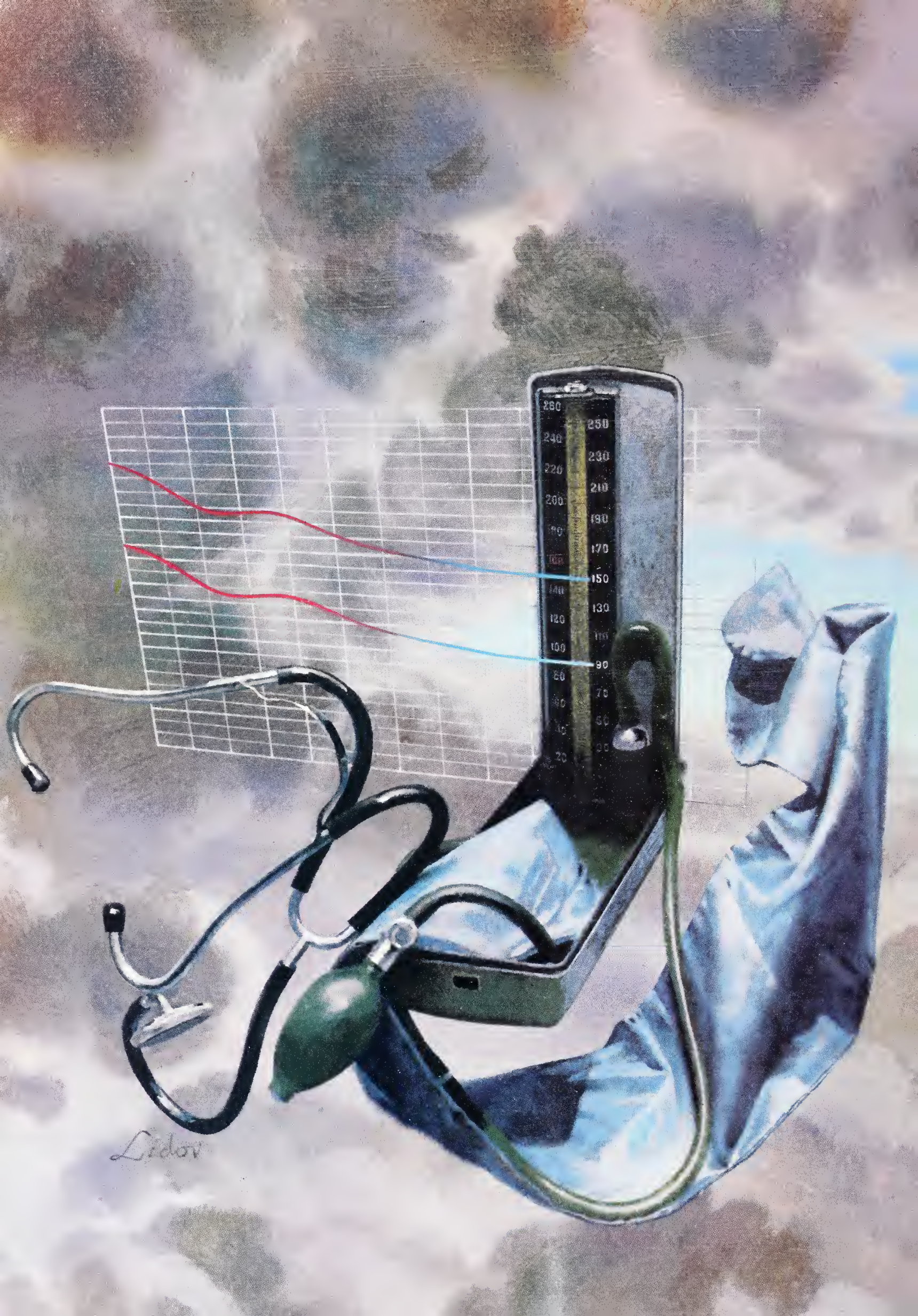
It was an honor for me to represent the physicians of South Carolina at the very impressive inauguration ceremonies for the President of the American Medical Association. The fact that the AMA is a federation of state medical societies was very evident at this function. Also, an interesting sideline was that two of the Presidents on the stage representing their state associations were graduates of the Medical University of South Carolina, myself and Howard McIlhaney who graduated in the class of June, 1943. He is President of the Missouri Medical Association.

The AMA is a strong, vibrant representative of American physicians and I believe a visit to one of its conventions would convince the doubters.

In addition, I was again impressed by the dedication of the official parties of the state association, and in particular the hardworking official delegation from the SCMA — John Hawk, Harrison Peeples, Tucker Weston, Ray Gillespie, Dessie Gilland and Halsted Stone. The thorough way the AMA business was conducted was amazing, and every issue was fully discussed. The decisions were probably the best for organized medicine.

Lastly, let me say that from my observations of the two student members who were part of our group, Stewart Haskins and Stuart Ball, and the representative from the Interns and Residents Section, John Fagg, M.D., the future of American medicine will be in good hands.

WAITUS O. TANNER, M.D.
President



Lidov

When choosing a diuretic for day-in-day-out hypertension control with comfortable compliance...

The agent you choose in mild to moderate essential hypertension should offer (1) long-term effectiveness, (2) patient comfort and compliance.

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In one long-term study¹ Zaroxolyn brought moderately elevated (average 161/109 mm Hg) blood pressure down to the range of normotension—and held it there for a year or more.

The investigator noted, "Patient cooperation was surprisingly good for a study of such duration [2½ years]. The once-daily dosage schedule with

metolazone [Zaroxolyn] no doubt contributed to patient compliance."

Overall compliance with Zaroxolyn is good—very good. An analysis of controlled clinical studies involving 188 Zaroxolyn patients showed that only eight discontinued therapy because of side effects. That's a discontinuation rate of only 4.3%, and broader clinical experience appears to substantiate this low rate?

Zaroxolyn. For long-term control and comfortable compliance in mild to moderate hypertension.

Recommended initial dosage in mild to moderate essential hypertension—2½ to 5 mg once daily

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once-daily antihypertensive diuretic

Before prescribing, see complete prescribing information in the package insert, or in PDR, or available from your Pennwalt representative. The following is a brief summary. **Indications:** Zaroxolyn (metolazone) is an antihypertensive diuretic indicated for the management of mild to moderate essential hypertension as sole therapeutic agent and in the more severe forms of hypertension in conjunction with other antihypertensive agents. Also, edema associated with heart failure and renal disease. **Contraindications:** Anuria, hepatic coma or precoma; allergy or sensitivity to Zaroxolyn. Or, as a routine in otherwise healthy pregnant women. **Warnings:** In theory cross-allergy may occur in patients allergic to sulfonamide-derived drugs, thiazides or quinethazone. Hypokalemia may occur, and is a particular hazard in digitalized patients; dangerous or fatal arrhythmias may occur. Azotemia and hyperuricemia may be noted or precipitated. Considerable potentiation may occur when given concurrently with furosemide. When used concurrently with other antihypertensives, the dosage of the other agents should be reduced. Use with potassium-sparing diuretics may cause potassium retention and hyperkalemia. Administration to women of childbearing

age requires that potential benefits be weighed against possible hazards to the fetus. Zaroxolyn appears in the breast milk. Not for pediatric use. **Precautions:** Perform periodic examination of serum electrolytes, BUN, uric acid, and glucose. Observe patients for signs of fluid or electrolyte imbalance. These determinations are particularly important when there is excessive vomiting or diarrhea, or when parenteral fluids are administered. Patients treated with diuretics or corticosteroids are susceptible to potassium depletion. Caution should be observed when administering to patients with gout or hyperuricemia or those with severely impaired renal function. Hyperglycemia and glycosuria may occur in latent diabetes. Chloride deficit and hypochloremic alkalosis may occur. Orthostatic hypotension may occur. Dilutional hyponatremia may occur in edematous patients in hot weather. **Adverse Reactions:** Constipation, nausea, vomiting, anorexia, diarrhea, bloating, epigastric distress, intrahepatic cholestatic jaundice, hepatitis, syncope, dizziness, drowsiness, vertigo, headache, orthostatic hypotension, excessive volume depletion, hemoconcentration, venous thrombosis, palpitation, chest pain, leukopenia, urticaria, other skin rashes, dryness of mouth,

hypokalemia, hyponatremia, hypochloremia, hypochloremic alkalosis, hyperuricemia, hyperglycemia, glycosuria, raised BUN or creatinine, fatigue, muscle cramps or spasm, weakness, restlessness, chills, and acute gouty attacks. **Usual Initial Once-Daily Dosages:** mild to moderate essential hypertension—2½ to 5 mg; edema of cardiac failure—5 to 10 mg; edema of renal disease—5 to 20 mg. Dosage adjustment may be necessary during the course of therapy. **How Supplied:** Tablets, 2½, 5 and 10 mg.

References:

1. Dornfeld L, Kane R: Metolazone in essential hypertension. The long-term clinical efficacy of a new diuretic. *Curr Ther Res* 18: 527-533, 1975.
2. Data on file, Medical Department, Pennwalt Prescription Products.

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AUXILIARY PRESIDENT'S PAGE



For this month's issue, we have a report from our
Legislative Chairman, Mrs. Sheila H. Davis.
Elise Caine, President

LEGISLATION

1977 and 1978 are the X years in our lives. They are "X years" because they represent an unknown quantity. During this period some type of national health insurance legislation will likely become law. The Auxiliary has ordered copies of the AMA's own national health insurance plan which will be studied by all county auxiliaries.

One major thrust of the South Carolina Auxiliary will be continued support of SOC PAC, encouraging more family and sustaining memberships.

The South Carolina Auxiliary stands ready to help the SCMA and the AMA thru our LEGS-Alerts. Our system has been proven to work well when large volumes of mail or direct telephone calls are needed in our state or national capitals for vitally important medical legislation. This type of action has been recently used with success for H2796 — Child Abuse Bill. Over 200 phone calls were made to the Senate Medical Affairs Chairman and Clerk of Court within 2 hours. This bill is now a law.

Using an equation of county auxiliary, plus county medical society, plus state auxiliary, plus state medical society, equaling four factors of effort rather than one factor, the potential for achieving success is much greater.

Sheila H. Davis (Mrs. Perry)
S. C. Legislative Chairman

Editorials

SWINE FLU REVISITED: THE BEER FACTOR

On 26 August 1976, as we prepared to launch the swine flu immunization campaign, representatives of the South Carolina Department of Health and Environmental Control and of the South Carolina Medical Association held a press conference. As we mustered backstage prior to going before the cameras, we reflected on the enormous value of the campaign in terms of potential lessons for the future — whatever the outcome and even the merits of this particular program. Speaking to the assembled press, Dr. Leo Walker, whose recollections appear below, boldly suggested that the success or failure of such a massive immunization program was, to a large extent, in its hands. This campaign could serve as a model of cooperation between the medical profession and the news media.

That we learned valuable lessons for the future is now undisputed. Although many have suggested that the field of preventive medicine suffered an enormous setback, a more forward-looking viewpoint, as promulgated by Dr. R. W. Penick in his essay below, suggests that the imperfections of the 1976 dress rehearsal can, and must, be ironed out prior to the next performance. Receiving little attention, but quite impressive, was the continued cooperation between the Department of Health and Environmental Control and the South Carolina Medical Association. The recognized role of the private physician in advising patients whether to receive the vaccine was no better emphasized than by the frequent communications to all physicians by SCMA president J. D. Gilland, which were formulated in consultation with the state agency. No hint of friction or discouragement was ever expressed.

In the August issue of *The Journal* we cautioned “not to assume that any illness closely following immunization is due to the inoculation.” It is tempting to suggest that this message was not conveyed adequately to the public in the wake of the several deaths which occurred on opening day. It is also tempting to suggest that the true nature of the decision to proceed with mass immunization was *never* conveyed adequately; for instance, a leading news magazine still alludes to the campaign as a “false scare,” rather than as a reasoned judgment based upon *possibility*. But what actually happened was complex and still worthy of retrospective analysis. Suffice it to suggest that the medical profession and the news media must work together more closely when actual or potential biological disasters recur.

Elsewhere in this issue, Mr. Allan D. Charles renders an illuminating perspective on what happened in our state during the 1918-1919 pandemic. The cooperation among organizations, and the role of the SCMA as a “clearinghouse of information,” were established then as vital elements. The major missing element is probably the need for private physicians, government agencies, and the news media to work together more closely. Government agencies should strive to do better the task of “controlling the story.” All of us should strive to do better the task which reporters sometimes call “the beer factor,” defined as making one’s viewpoint known to local reporters, “over a beer,” well before the deadline for the major story.

But no, Mr. Charles, we no longer prescribe alcohol for our patients with influenza, nor does the Red Cross dispense it.

— CSB

REFLECTIONS ON THE GREAT CAMPAIGN

In the early weeks of 1976, a new strain of influenza virus emerged in New Jersey and, apparently, caused fatal pneumonia in a young soldier at Fort Dix. This virus quickly became known as the "Swine Flu." The story that followed was, at the same time, both tragic and hilarious, both alarming and comforting.

Early in the scenario, laboratory scientists discovered that the new virus strain was not simply another minor mutation of the 1968 Hong Kong virus. The New Jersey strain had the laboratory characteristics of a virus believed by many experts in influenza to be identical or similar to the virus that caused the Great Pandemic of 1918 with reverberations for several years thereafter. Of course, viral serological and culture technology were not available during the Great Pandemic, so that the exact identity of the causative agent remains uncertain.

Chickens get chicken flu, turkeys get turkey flu, swine get swine flu and humans get human flu. These are general rules of influenza viral contagion. Occasionally, interspecies transmission will occur, but it would be extraordinary if the virus of swine influenza contracted by a hog farmer were transmitted by him to his wife.

The Fort Dix strain had immunologic characteristics similar to regular swine influenza, and so was dubbed "swine-like." This technical terminology was transformed in the public's mind into just plain "Swine Flu." Acting on the basis of fear, sound medical thinking and an unknown degree of political savvy, the decision was made to offer to every man, woman and child in the United States a vaccination against the presumable recrudescence of the Great Pandemic. What followed this decision was a delivery program that proved on the national scale to be a comedy of errors.

Given the fact that swine flu was never seen again, there was some difficulty in convincing the public that the program was necessary. Normally some twenty million doses of influenza vaccine are given annually in the United States, both to those patients who are at high risk for secondary complications of influenza and to generally healthy people who want to avoid the disease, as well as employees of companies and institutions

willing to purchase the vaccine. The swine flu program made everyone (except very young children) eligible for the shot. The availability of four types of swine flu vaccine in addition to the commercially available vaccine left over from previous years compounded the confusion of the public as well as health practitioners. To administer a shot was not sufficient — the recipient first had to read a two-page form and sign his or her consent. Vast accountability systems were put into effect such that there were, at times, more government workers accounting for vaccine than there were people receiving vaccine. The public relations efforts were ill-timed with information coming from Washington that frequently conflicted with information coming from state and local levels. The vaccine had to be "sold" and the advertising effort, though significant, failed because of the continued delays in receiving the vaccine from the manufacturers. Vaccine production was held up because of liability issues. By the time South Carolina had vaccine on hand, we were a month away from the statistical beginning of the influenza season. Despite the discouragement of our policy by federal authorities, South Carolina pursued a strategy of inoculating our elderly and otherwise "high risk" citizens prior to beginning the mass monovalent vaccination campaign. By early November, we had dozens of trained teams across the State and, for the first time, we were in a position to follow Dr. Albert Sabin's recommendation of stockpiling the monovalent vaccine until we had evidence of an outbreak of the New Jersey strain. At that point the federal bureaucratic juggernaut resisted re-evaluation of the need to continue the vaccination program. We were told that "nothing had changed" since the program began, which was true, except for the fact that nearly a year had passed since the Fort Dix outbreak and the world had yet to see another case of New Jersey influenza. The program came to a halt with the unfortunate discovery of a probable relationship between Guillain-Barré syndrome and prior influenza inoculation. Fortunately we had no such incidents in South Carolina.

Because of the flu campaign, public health programs may have lost, for a time, a little of their

credibility. The Center for Disease Control hopefully has learned that it cannot manage a national grass-roots program from an office in Washington. Perhaps there are several hundred thousand South Carolinians who are protected against a disease that is now extinct. Perhaps the New Jersey flu will come, but will come a year late (in which case we have no guarantee that people vaccinated in 1976 will have protection in 1977). We have the vaccine to meet the demand should swine flu appear. More importantly we

have literally hundreds of public health workers in communities all over the State of South Carolina who now are capable of planning, organizing and conducting mass immunization clinics should the need ever arise again. It is an unpleasant thought, but there are probably still many plagues that could visit us.

Leo L. Walker, M.D.,
1333 Taylor Street,
Columbia, S. C.

A LESSON IN PREVENTION

Editorial post-mortems on the swine flu immunization program have so far almost exclusively characterized this program as all bad — hastily conceived, probably unnecessary, expensive and symptomatic of government incompetence and imperialism against the private practice of medicine. While it is true that the program ran into snags and controversies that slowed its progress, cast doubt on its safety and jeopardized its chances for success, it has nonetheless presented us with a potentially valuable exercise in preventive health.

It serves little purpose to argue whether the decision was right or wrong. If the swine flu program was a flop, it was ultimately because of the lack of response on the part of many people to get the shot. And who can blame them for their reticence? Even the experts disagreed on this one. Only recently, however, with increased public interest in medical advancements, has the news media begun to look into and report publicly on the newest of developments and attendant professional controversy. The swine flu program is an excellent example of how medical controversy has “gone public.”

There are more important issues than resurrecting and repeating past controversy. It is better to examine the challenges that the swine flu program presented to communities, how they were met, and what this could mean for the future. First was the obvious challenge inherent in a mass immunization program of unprecedented size and scope — how to make the vaccine as available as possible in as efficient a man-

ner as possible to as many people as desired it. Over and above accomplishing the mechanics of the program was the additional challenge to make the vaccine available in such a way that the methods would be applicable to any vaccine-preventable communicable disease that may next loom on the horizon.

With type A influenza viruses having, as they do, the mutagenic ability to each year render a significant proportion of the population susceptible, flu pandemics can indeed happen again. Or perhaps declining saturation levels against certain childhood diseases are omens that the next threat will be polio, rubella, or another childhood disease such as rubeola — as it indeed was for many communities throughout the country earlier this year. It is also quite possible that we will next be faced with an entirely new disease entity and a new vaccine. In light of this, it seemed infinitely wiser to us to regard the swine flu program as presenting the possibility to develop an “infectious disease disaster plan” rather than bemoaning our fate and frustrations.

Such a plan was set up and tested utilizing public health professionals, private citizens, industry, the media and community agencies. Even though they may have disagreed with swine flu immunizations per se, the plan development was honored by the support, cooperation and involvement of our medical societies. Mass immunization clinics were conducted by “immunization teams” comprised of coordinators functioning in areas such as clinical management, administration, supplies and equipment, public-

ity, communications, transportation, traffic control and security. Clinic site selection was based on criteria which included convenient access, ample parking, suitable building space, adequate ventilation, emergency facilities, telephone, restrooms, lighting, access to the handicapped, available exits, etc. Movement in the clinics was an orderly progression from initial screening (e.g. for allergies or other potential problems), through informed consent stations, past tally-takers, into preparation (where coats came off, sleeves rolled up and arms were swabbed), and finally to the injection site, clean-up and exit. Clinics organized in this fashion could immunize up to 5000 patients per day. While environmentalists handled clinic equipment and supplies, community volunteers directed traffic and read consent forms to the illiterate, and as always, people reminisced, reacted and interacted.

In addition to the experience gained during the program, research is in progress which may further refine the emergency action plan to better motivate participation the next time it may need to be used. A randomized sample of 2000 persons is being surveyed relative to their attitudes and participation in the program. Although final results are still being tabulated and interpreted, preliminary results (obtained from slightly more than half the sample) show that among the main reasons people stated for taking the swine flu shot was, rather humorously — and obviously superficially — “Because my husband (wife) made me.” As might be expected, preliminary results reveal that those who took the shot

are more likely to be of a higher educational and income level than those who did not. Also, it appears that in spite of the large-scale mass media campaign which was conducted, a large segment of the target population was not motivated to “roll up their sleeves.” Why? It will be interesting to see what effect, if any, convenience, cost, clinic location, publicity, health status and physician advice had on participation. A cost per dose analysis of the program is currently in progress. Included in the analysis are out-of-pocket or non-reimbursed expenses to agencies as well as the cost of community coordination, volunteer time and publicity efforts.

We are not Pollyannas, but rather than weep and gnash our teeth at a frustrating experience, we prefer to learn from the experience, to better protect communities in the future when faced with preventable outbreaks. In that outbreaks will most probably occur, a rehearsed plan of emergency action in prevention with potential for broad application can be of the utmost value to us all.

If and when the day arrives that we must use “the infectious disease disaster plan,” we hope that our community will be ready. Will yours be?

R. W. Penick, M.D., M.P.H.,
District Medical Director
S. C. Department of Health and
Environmental Control,
Appalachia 2 Public Health Dis-
trict,
Greenville, S. C. 29602

LETTERS TO THE EDITOR

Dear Editor:

The S. C. Pharmaceutical Association would like to present some comments on the importance of cooperation between physicians and pharmacists in nursing facilities.

Pharmacists perform two distinct roles within nursing facilities: (1) Vendor and (2) Consultant pharmacist. Often in South Carolina, the two duties are combined.

The vendor pharmacist is responsible as the supplier of medications to a nursing facility. He is required to fill the drug orders of physicians directly from chart orders or by direct verbal communication. He is subject to all state and federal regulations in supplying these medicines. Most often he is a community pharmacist supplying these medicines from his pharmacy. Less often he is an employee of the nursing facility supplying medicines from an "in-home" pharmacy. He, too, is subject to retail pharmacy laws and regulations.

The vendor pharmacists of South Carolina have experienced much difficulty with physicians in regard to the Department of Social Services (DSS) Medicaid formulary. Drugs not on this formulary are not compensable for state Medicaid patients.

If physicians would familiarize themselves with the Medicaid formulary and utilize it as much as possible in drug selection, it would aid the pharmacists greatly. On some levels of care in nursing facilities, the cost of non-formulary medications may be deducted from a small monthly "personal needs allowance." The physician's utilization of the formulary would also prevent depletion of this allowance for the patient.

Pharmacists also urge physicians to aid in encouraging DSS to develop a separate and open formulary for skilled nursing facilities.

The vendor pharmacist also must have direct written or verbal medication orders from the physician. The communication of such orders by nursing personnel is considered an illegal order and has been declared a non-compensable order

by DSS in its January, 1977, regulations.

The consultant pharmacist in skilled nursing and intermediate care facilities is a clinical counterpart to the hospital pharmacist. The consultant pharmacist is responsible for cooperative establishment of all pharmaceutical policies and procedures as well as policies on infection control through formalized committees. In order to carry out these policies and procedures to ensure quality health care, pharmacists, physicians, nursing staff, paramedics and administrators must work together as a health care team. Yet it is often evident that physicians choose to give little importance to meeting with pharmaceutical service or infection control committees.

The consultant also is responsible for monthly monitoring each patient chart in SCF's. He monitors for possible drug interactions, lab test modifications, inappropriate dosage levels and rationality. The pharmacist is required to submit a report of all irregularities to the administrator, medical director and, if appropriate, to the director of nursing.

Many consultant pharmacists are upset by the reaction of some physicians to their monitoring of patient charts. Common physician reactions range from indignation, accusations of practicing medicine and apathy, to complete gratitude. While every consultant pharmacist, at times, deserves each one of these reactions, the patient deserves a constructive response from the physician. While some physicians may consider the pharmacist just another bureaucratic fixture looking over their shoulders, the consultant pharmacist considers himself a useful member of the health care team.

We urge nursing facility physicians to use the knowledge and expertise of consultant pharmacists, whose active involvement should be expected — and demanded if required.

Sincerely,

Eldon Armstrong, Chairman
Consultant Pharmacy Committee
S. C. Pharmaceutical Association

SCMA MID-WINTER MEETING

The 1977 Mid-Winter Meeting of the South Carolina Medical Association will be held in Spartanburg, South Carolina at the Sheraton Hotel, November 4-6, 1977. Hosting the meeting will be the Spartanburg County Medical Society, Sidney Fulmer, M.D., President. For the first time, a workshop will be held in conjunction with the Mid-Winter Meeting. Scheduled is a

Practice Management Workshop presented by Practice Productivity, Inc., of Atlanta. The two major topics will be Time Management and Financial Management. They will be held the morning and afternoon of November 4. Applications and complete information will be mailed from the SCMA office in September, but physicians are urged to mark their calendars now.

GOVERNOR SIGNS STATUTE OF LIMITATIONS BILL



Pictured after signing the Statute of Limitations Bill, the Honorable James B. Edwards, Governor of the State of South Carolina, presents a souvenir of this occasion to Waitus O. Tanner,

M.D., President of the South Carolina Medical Association. Pictured also at the left is Representative Hunter Howard, Fountain Inn, House Speaker and Floor Leader of the Bill

PHYSICIAN RECRUITMENT/PLACEMENT

The following physicians are actively seeking practice appointments in South Carolina:

GENERAL SURGERY — Age, 31. Columbia University, College of Physicians and Surgeons, N. Y., 1971. Residency, Presbyterian Hospital, N. Y., 1972-1976. Licensed in N. Y. Board certified and eligible, General Surgery. Currently in U. S. Army, 7/76-7/78. Seeking single-specialty, partnership or multi-specialty group in metropolitan area. Prefers Low Country or Upstate.

CARDIOVASCULAR DISEASES

INTERNAL MEDICINE — Age, 29. Medical College of Georgia, Augusta, Ga., 1973. Residency, Medical College of Georgia, 7/74-6/76. Int. Med. Other training, Med. College of Ga., 7/76-6/78, Cardiovascular Diseases. Licensed in Ga. Board certified, Int. Med.; Board eligible, Cardiovascular Diseases, 1978. Prefers single or multi-specialty group or partnership practice in medium-sized community. Salary — \$30,000 first year.

UROLOGY — Age, 36. Howard University, Washington, D. C., 1969. Residency, Univ. of Maryland, Baltimore, Md., Gen. Surgery, 1971-72; Univ. of Maryland, Urology, 1973-76. Fellowship, Pediatric Urology, Children's Hospital of Phila., Pa., 1976-77. Licensed in 5 states. Board eligible, Int. Med. Seeks partnership, single or multi-specialty group, or academic type of practice in large metropolitan area.

GASTROENTEROLOGY

INTERNAL MEDICINE — Age, 34. Medical Univ. of S. C., Charleston, S. C., 1970. Internship, Med. College of Va., Richmond, Va., 7/70-6/71. Residency, Medical Univ. of S. C., 71-73, Int. Medicine. Other training, Gastroenterology, Med. College of Ga., 7/73-6/74; Univ. of Ala., 7/76-6/77. Licensed in S. C. Board certified, Int. Med.; Board eligible, Gastroenterology. Academic Appt., Univ. of Ala., Dept. of Gastroenterology, 7/77-6/78. Prefers partnership, single or multi-specialty group type of practice in large metropolitan area.

If interested in any of these physicians or seeking a physician to join your practice, contact:

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Contact: Rural Health Delivery Project (Address Above)

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GENERAL SURGEON, 37, Board eligible, F.R.C.S. (Eng & Ed), FLEX, experience in Vascular and Pediatric Surgery. Excellent training. Academic background including Harvard. Excellent references. Seeks practice opportunity — solo, group, partnership or institutional. Available January 78. Contact I. N. Nayak, M.D., St. Barnabas Medical Center, Livingston, New Jersey 07039. (201) 533-5252 or (201) 731-7179 evenings.

PRACTICE OPPORTUNITY: Available July 1, 1978, for one or two family practitioners, completely equipped office with medical records. For further information, write **PRACTICE AVAILABLE**, P. O. Box 11188, Columbia, South Carolina 29211.

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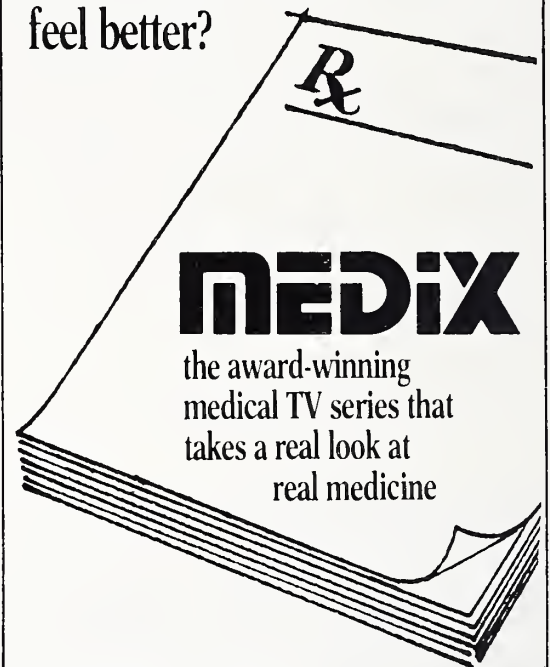
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We encourage original articles of potential benefit and interest to the members of the South Carolina Medical Association; priorities for publication are indicated in the January 1977 issues of *The Journal*. Contributions (of approximately 8 typewritten pages), containing relatively few, well-selected references, are preferred. References should be cited in the text in superscript, e.g., "Bone and colleagues² . . .", and should conform to the following style: "2. Bone, RC, Francis, PB, Pierce, AK: Intravascular coagulation associated with adult respiratory distress syndrome. *Amer J Med* 61: 585-589, 1976." Ordinarily, publication of four illustrations or the equivalent will be paid for by *The Journal*. Authors may assume cost of additional figures.

Manuscripts should be typewritten and double-spaced. The original and one copy should be submitted. A third copy should be retained by the author for use in proofing. Reprints will be made available by the publisher at established rates.

THE FETAL ALCOHOL SYNDROME

Martin M. DeBeukelaer, M.D.*

Carrie L. Randall, Ph.D.**

The relationship between maternal alcohol abuse and undesirable outcomes of pregnancy has been recognized since ancient times, but only recently has it gained more scientific validation. Both clinical and animal studies have presented convincing evidence that ethanol has deleterious effects on the developing organism. The purpose of this communication is to briefly review the relevant literature supporting this concept and to familiarize the practicing physician with the characteristic syndrome present in the offspring of many alcoholic women.

For the past decade, clinical observations from around the world have reemphasized the association between fetal anomalies and maternal alcohol consumption. In 1973, Jones, et al. published the first reports in the American literature to gain scientific as well as layman acclaim. The authors identified a common pattern of dysmorphogenesis in children born to alcoholic mothers^{1, 2} and coined the term "Fetal Alcohol Syndrome" (FAS), which is now conventionally employed. Other corroborating reports have followed and a recognizable and characteristic constellation of defects has emerged (see Table 1). Prenatal growth deficiency, failure to thrive, impaired psychomotor development, distinctive

craniofacial features, an increased incidence of malformations and peculiar behavioral disturbances are general findings observed in virtually all reported cases.

TABLE I

ABNORMALITIES OBSERVED IN THE FETAL ALCOHOL SYNDROME

	JONES et al (3)	PRESENT CASE
CHRONIC MATERNAL ALCOHOL ABUSE	100%	+
PRENATAL GROWTH DEFICIENCY	97%	+
FAILURE TO THRIVE	97%	+
MICROCEPHALY	93%	+
SHORT PALPEBRAL FISSURES	92%	+
DEVELOPMENTAL DELAY/MENTAL DEFICIENCY	89%	+
FINE MOTOR DYSFUNCTION	80%	+
MIDFACIAL HYPOPLASIA	65%	+
EPICANTHAL FOLDS	49%	+
ABNORMAL PALMAR CREASES	49%	-
CARDIAC DEFECT	49%	-
JOINT ANOMALIES	41%	+
EXTERNAL GENITAL ANOMALIES	32%	-
HEMANGIOMAS	29%	-
EAR ANOMALIES	22%	+
STRABISMUS	+	+
SMALL NAILS	+	+
AGITATED/REPETITIVE BEHAVIOR	+	+
NEONATAL DISTRESS/MORBIDITY	+	+
RENAL ANOMALIES, INSUFFICIENCY	-	+

* Assistant Professor of Pediatrics, MUSC

** Assistant Professor of Psychiatry, MUSC, 171 Ashley Avenue, Charleston, S. C. 29403

CASE REPORT

A 26-month-old black male was referred to the Medical University Hospital because of failure to thrive, developmental retardation and suspected renal disease.

The 31-year-old mother, a known chronic alcoholic, was often inebriated during pregnancy. She had eight miscarriages in the past and one of her children died of unknown cause early in infancy. Two other children were small at birth and continue to show growth retardation.

At birth, after an estimated gestation of 32 weeks, the patient's weight, length and head circumference corresponded to a gestational age of only 28 weeks. The baby was noted to grow very poorly and he only weighed 3.2 kg. at the age of five months, when he was discharged in the care of a foster mother. In spite of receiving adequate attention and care, his growth rate remained slow (see Figure 1) and there was a significant lag in social and motor development.

Physical examination on admission revealed a small, microcephalic child appearing very restless. A round forehead and flat superior orbital ridges were noted. The palpebral fissures were small and epicanthal folds, mild ptosis of the eyelids and left esotropia were present (see Figure 2). The nose was short and stubby, with a flattened nasal bridge and upturned nares. The earlobes were small and low-set. Examination of the chest, abdomen and genitalia revealed no abnormalities. Extension at the level of the elbows was reduced by about ten degrees. Nails were small, particularly on the toes. The patient demonstrated repetitive and self-stimulating behavior such as head banging, rocking and echolalia. Language was limited to high-pitched noises. He responded well to auditory stimuli. He was unable to stand without support, but could crawl and climb a chair. Developmental testing indicated an overall function at a 10-month-old level.

Laboratory studies revealed a hemoglobin of 11.8 gm/100 ml, BUN 38 mg/100 ml, serum creatinine 2.1 mg/100 ml, and CO₂ combining power 14 mEq/l. Thyroid and liver function studies, plasma amino acids and urinary metabolic screening for reducing substances, mucopolysaccharides and amino acids were all within normal limits. VDRL was nonreactive and complement fixation titers for toxoplasmosis, rubella, cytomegalovirus and herpes simplex were not elevated. Skeletal survey showed a

bone age between 12 and 15 months. The cerebrospinal fluid was normal. An electroencephalogram and computerized axial tomograms of the brain were unremarkable. Chromosome studies showed a normal male karyogram. Urinalyses demonstrated dilute urines, slight proteinuria and an unremarkable sediment. The creatinine clearance was only 18 ml/min/1.73 m². An intravenous pyelogram and renal radioisotopic and ultrasound studies revealed a single, poorly functioning, hypoplastic right kidney.

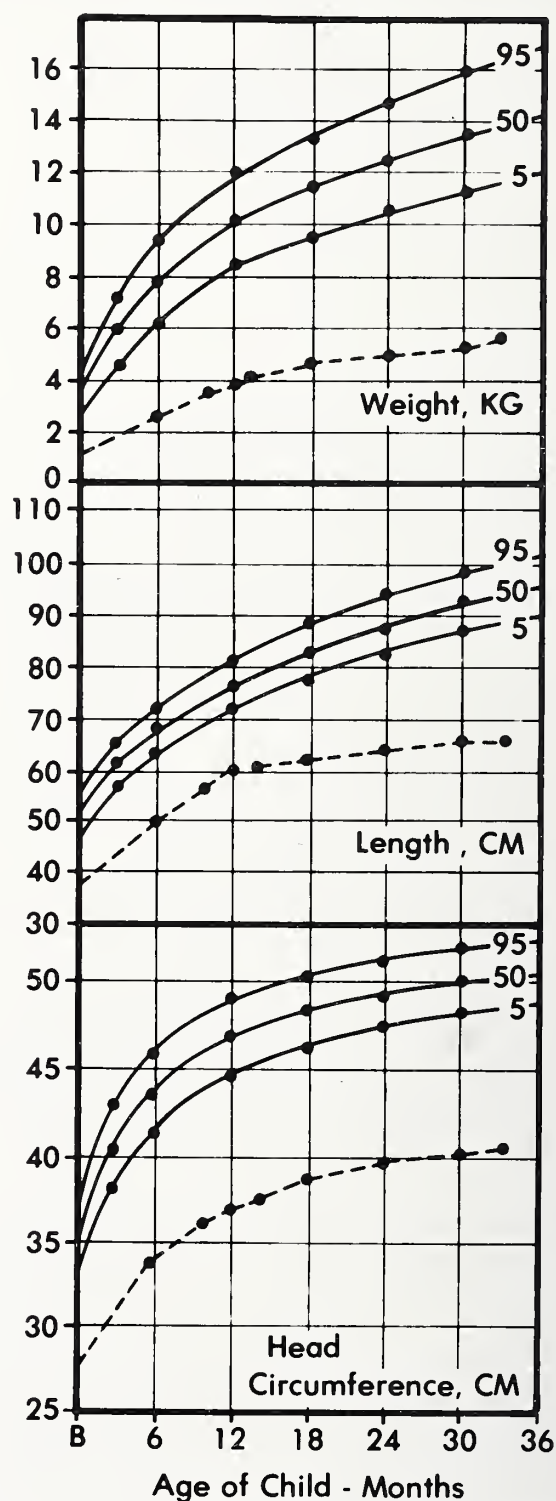


FIGURE 1 — Weight, length and head circumference curves of the patient are shown in dashed lines. The curve for normal children in the 5th, 50th and 95th percentiles are represented by solid lines.

FETAL ALCOHOL SYNDROME

CHARACTERISTICS OF THE FETAL ALCOHOL SYNDROME

The most striking aspect of the FAS is a deficiency of prenatal as well as postnatal growth (see Figure 1). Prenatal growth impairment is more severe with regard to body length than birth weight. Postnatally, weight gain is abnormally slow and catch-up growth uncommon, even when adequate nutrition and environment are provided.¹ These children are frequently hospitalized for failure to thrive.

Psychomotor impairment is grossly apparent from birth. Sucking and grasp reflexes are weak. Sitting, standing and walking are abnormally delayed and fine motor coordination is poor. Stereotypic and repetitive behavior, tremulousness, hyperactivity, and seizures are also often seen. Mental insufficiency is evident regardless of postnatal environment, with IQ's typically below 70. Microcephaly is almost always present.

Minor, but characteristic, craniofacial, ocular, skeletal, cardiac and external genital anomalies

are included in the FAS. The facial features are distinctive (Figures 2 & 3) and can aid the physician in the diagnosis of this syndrome. Short palpebral fissures and epicanthal folds are typical, which may be due to microphthalmia. The nose is commonly short with a flattened nasal bridge and upturned nares. The eyes are usually set far apart. Strabismus and ptosis of the eyelids may also be seen. Midfacial maxillary hypoplasia is evident. The helices of the ears are often underdeveloped and the ear lobes small.

Skeletal anomalies include a decreased range of extension at the joints, particularly at the interphalangeal level (camptodactyly).

It is suggested that congenital heart disease may be as frequent as 50 percent in infants with the FAS.³ A recent report⁴ identified five patients with an atrial septal defect, one with ventricular outflow tract obstruction, and one with aplasia of the pulmonary artery.

External genital anomalies consist primarily of hypoplastic labia and enlargement of the clitoris. The incidence of genital defects are more common in female children with the FAS.



FIGURE 2 — The patient in this report at 33 months of age. Note the short palpebral fissures, epicanthal folds, strabismus, flattened nasal bridge, short nose with upturned nares, and small chin.

FETAL ALCOHOL SYNDROME



FIGURE 3 — Four patients with the fetal alcohol syndrome illustrating the craniofacial characteristics (courtesy of Doctor Kenneth L. Jones, University of California Medical Center, San Diego, California and The Lancet, London, England).

FETAL ALCOHOL SYNDROME

Hemangiomas, pale skin, cleft palate, small nails, hypoplastic and hydronephrotic kidneys, pectus excavatum, small or additional nipples, hip dislocation, and clinodactyly have also been observed, but the incidence is not as frequent as for the anomalies defined above.

DISCUSSION

The diagnosis of the FAS rests upon the presence of impaired prenatal and postnatal growth, mental retardation, behavioral disturbances, and characteristic morphological defects, in conjunction with a history of maternal alcohol abuse during pregnancy. The syndrome has to be distinguished from the Trisomy-18, Noonan, Cornelia DeLange, Smith-Lemli-Opitz, phenylhydantoin, and Russell-Silver syndromes, which have features in common with the FAS.^{2, 5} These and other conditions were ruled out in the present case which appears to fit the characteristics of the FAS (see Table I).

The mothers of children with the FAS follow a common pattern, which may aid in retrospective as well as prospective identification of affected children. The women are older, multiparous (often having more than six pregnancies), have a history of miscarriages or stillbirths, and show little weight gain during pregnancy. In addition, other features associated with chronic alcoholism are often present, such as malnutrition, evidence of vitamin deficiencies, drug abuse, anemia, poor hygiene, infections, trauma, heavy tobacco use, emotional disturbances and socio-economic deprivation.

Many of the previously listed conditions are known to have, each on their own accord, a significant effect on the outcome of pregnancy, neonatal morbidity, postnatal development and/or the incidence of congenital anomalies. This has made it impossible in the past to ascertain the toxic effects of ethanol itself on the developing fetus, although it was recognized that this substance readily passes the placental barrier. The more careful and controlled animal studies of recent years however, seem to indicate that ethanol is a teratogen.

Indeed, patterns of malformations and evidence of embryo toxicity, similar to those observed in humans with the FAS, have been produced experimentally in mouse fetuses exposed to ethanol in utero.⁶⁻⁸ The anomalies include skeletal, craniofacial, ophthalmic and organ sys-

tem defects. Most important, these malformations for the most part were observed in a controlled situation where nutrition and the daily supply of vitamins and minerals were adequate. Less obvious alterations in behavioral characteristics have also been described.⁹ The data suggest that alcohol is teratogenic, either directly, or indirectly through the action of a metabolite. At this time, the mechanism by which this occurs remains speculative.

We feel that the recognition of the FAS by physicians and medical personnel is important for diagnostic as well as for prognostic purposes. As indicated previously, many of the characteristics of the FAS are irreversible. Prevention, thus becomes an ultimate goal, especially in light of the likelihood of birth defects, intellectual impairment, retarded psychomotor development, and the increased incidence of fetal wastage and postnatal mortality. Preliminary prospective studies indicate that abnormalities including growth retardation may be seen in as high as 50 percent of the offspring of mothers using excessive amounts of alcohol during pregnancy and that the FAS may be present in approximately 12 percent.¹⁰

The evidence presented should call for renewed interest in measures to prevent and treat alcoholism. It should provide an additional incentive for health professionals, governmental agencies, social organizations, legislators and others in their fight against alcohol abuse. The deleterious effects of ethanol on the developing organism are seen in all racial groups, and there is no predilection for a specific socio-economic status. In the near future, important questions concerning critical exposure periods, dosage, and pathogenesis of these anomalies should be answered. □

The authors would like to thank Doctor Donna R. Stroud, from the Department of Pediatrics, Greenville General Hospital, for referring this patient. Additional references are available from the authors upon request.

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10. Fetal Alcoholism Workshop, San Diego, February, 1977.

CURRENT STATUS OF HALOTHANE HEPATITIS

TERRY L. DODGE, M.D.*

Halothane was introduced into clinical practice in 1956, as a safe, pleasant, non-flammable inhalation anesthetic. By 1957, Burns and co-workers in the British Isles reported a case of jaundice, fatty degeneration and liver cell necrosis following halothane anesthesia.¹ Halothane could not definitely be incriminated since post-mortem examination revealed the portal areas to be grossly infiltrated by neoplastic cells.

Several more cases followed in the next few years, and in 1962 a case of massive hepatic necrosis was reported following the second of two halothane administrations for relatively routine operations.² The first post-operative course was unremarkable but the patient died following the second administration 21 days later.

Numerous other cases of liver dysfunction following halothane administration rapidly appeared, so a large study was designed to determine if a correlation existed between halothane and liver dysfunction. The National Halothane Study³ was a detailed retrospective review of 856,500 cases of general anesthesia from 34 institutions between 1959 and 1962. Any death within six weeks of general anesthesia was re-

viewed. The various agents and mortality rates are listed in Table I.

TABLE I

Deaths Occurring Within 6 Weeks After General Anesthesia*

Type of Anesthetic	Per Cent Mortality
Halothane	1.87
N ₂ O-Barbiturate	1.49
Cyclopropane	2.54
Ether	1.35
Other	2.51
Overall	1.93

*National Halothane Study³

There were a total of nine cases of unexplained massive hepatic necrosis. Seven patients had received halothane for the final operation of which five died following clinical liver failure. One patient had received cyclopropane and one patient had received ethylene. Since six of these seven had been previously reported, a voluntary bias was incorporated into this study. Table II lists the incidence rates for massive hepatic necrosis. It can be seen that unexplained massive hepatic necrosis is quite rare. A large British study⁴ based on mandatory reporting, lists incidence of post-operative jaundice as 1 in 600,000.

Was halothane hepatotoxic? Haid¹ had maintained a five-year-old boy with tetanus under Nitrous Oxide-Oxygen-Halothane anesthesia for

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six weeks and used more than 1500 cc of halothane during the first three weeks. The patient eventually died of massive hemorrhage following erosion of the inominate artery. Examination of the liver revealed neither abnormal pathology nor any degenerative hepatic changes indicative of necrosis. Surely if a drug was toxic the liver would show changes in six weeks! In spite of the multitude of investigations which have subsequently been carried out, none have shown that halothane is a direct hepatotoxin.

TABLE II

Frequency of Massive Hepatic Necrosis* (MHN)

Legend	Approximate Incidence
All Autopsies	1:125
General Anesthesia	1:10,000
Halothane Anesthesia	1:10,000
Cyclopropane Anesthesia	1:6,000
Unexplained MHN Following General Anesthesia	1:100,000

*National Halothane Study³

A second theory of “Halothane Hepatitis” has been postulated and widely accepted. A hypersensitivity is thought to occur with the liver as a target organ. Credence was given to this theory when two anesthesiologists^{5, 6} developed recurrent hepatitis after a short challenge with halothane. In both cases symptoms recurred within 24 hours of exposure. One patient was challenged just two months after his onset of hepatitis. The other patient had six recurrences not associated with his exposure to halothane.

Much has been written regarding an immuno-suppressive mechanism whereby a latent or subclinical hepatitis virus becomes active after exposure to halothane. Although many studies have been undertaken, the data from lymphocyte studies is still not conclusive.

The fourth theory which currently enjoys wide acceptance ascribes the entity of “Halothane Hepatitis” to toxicity of a metabolite of halothane. Probably at least 20 percent of inhaled halothane is metabolized,⁷ with the end product being trifluoroacetic acid which is not hepatotoxic either. It is speculated that a highly reactive intermediate or free-radical disrupts the lipoprotein transport system in the liver ultimately leading to centrilobular hepatic necrosis.^{7, 8}

Many compounds including barbiturates, diphenylhydantoin and halothane induce liver microsomal enzymes. This increases the percentage of halothane metabolized and the number of free radicals produced but the pathway is still the same. Green’s clinical study⁹ and Brown’s animal study¹⁰ fail to show an increase in liver damage associated with halothane administration after enzyme induction.

Brown¹⁰ postulates that the damage is caused by an abnormal metabolic pathway; namely reduction. This could be the result of an inborn error of metabolism or a result of enzyme induction. In rats, Brown¹⁰ has been able to consistently produce centrilobular necrosis following halothane administration by pretreating the animals with Aroclor, a polychlorinated biphenyl compound, which is used in industry as a plasticizer. It is used in the manufacture of cardboard boxes, milk cartons, carbon paper and IV bags. Aroclor induces the liver enzymes to metabolize halothane by a reductive process rather than one of oxidation.

It is generally well accepted that if “Halothane Hepatitis” actually exists as a separate clinical entity, it is certainly quite rare. The ascribed clinical syndrome usually follows an uneventful anesthetic and operation. The patient develops a fever 12-48 hours post-operatively with an eosinophilia. The liver enzymes are elevated and liver function rapidly deteriorates resulting in hepatic coma and death 7-14 days later. Post-mortem examination of the liver reveals massive centrilobular necrosis.

A multitude of doctrines and protocols have been advanced advocating absolute and relative contraindications to the use of halothane. The origin of these recommendations is often difficult to find and not always based on sound scientific data. The frequently quoted recommendation of not repeating the agent within three months of a previous halothane anesthetic arises from a recommendation by Howland¹² based on a paper by Popper¹¹ stating that the sensitivity to halothane lasts for two months or less after exposure. According to the National Halothane Study,³ halothane should not be administered to a patient who had unexplained fever following a previous anesthetic. Yet it is well recognized that nearly all operative procedures result in an elevation of temperature post-operatively.

The only contraindication listed in the package

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insert for halothane pertains to not using it for obstetrical anesthesia except when uterine relaxation is required. The warning is also given that when a previous exposure to halothane was followed by unexplained jaundice, consideration be given to the use of other anesthetic agents.

Other than the above two reasons, I see no real contraindication to halothane administration. Certainly other conditions such as exposure to hepatitis, elevation of liver enzymes, and pre-existing liver dysfunction must be considered before selecting an anesthetic agent. These relative contraindications should not arbitrarily preclude the use of such an excellent anesthetic agent. □

The ideas expressed in this article are those of the author and should not be considered to reflect the opinions of the Department of the Navy or the Department of Defense.

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MEDICAL EDUCATION TODAY*

TERENCE C. DAVIES, M.D.**

When I first joined a medical school teaching faculty, I had only been graduated for some four years and I held some rather strong opinions about teaching. Basically, these reflected my own, good and bad, experiences in medical school — experiences which were still very vivid in my mind at that time. In very simplistic fashion, I believed that there were three golden rules that a teacher should observe:

1. He should know what he wanted to teach, very well indeed.
2. He should entertain his students and hold their attention while he delivered the information.
3. He should cover his subject in the assigned time interval and he should always finish on time.

How very simple it all appeared. Why didn't everyone observe these guidelines and be "good teachers?" Some fifteen years later I am chastened to tell you that in my experience these simple tenets are as difficult to apply consistently and predictably as the golden rule of life, "love thy neighbor!" Try as we will we fall short. We will not have read the latest article and our knowledge will be incomplete. Worse, we will periodically fail to communicate properly what we *do* know, much to the indignation and confusion of our students at examination time. Although we invoke the limerics of Lear, the humor of Mark Twain, and the visual effects of Playboy magazine, even so there will be somebody sleeping in the fourth row from the back and there will be a drone of conversation from some constantly shifting locus. Finally, most unpardonable sin, our pleasant intellectual diversions leave us with five minutes to the hour and half the relevant facts unstated; and so we bruise bottoms as well as brains as we exceed the limits of time and also of our pupils' tempers. However, we keep trying and you our students bear with

us, not necessarily out of love or loyalty but rather because you keep hoping that we'll get better. Sometimes we do, and then on occasions like this one you thank us for our efforts. I am sure that you realize what this kind of recognition means to a teacher. When he or she has tried hard enough to receive your accolade, then for that particular teacher there can be no greater reward.

When I first heard the title "Medical Education Today," I had an immediate association of ideas and mentally composed an alternative title to fit the same topic. I have these flights of whimsy and they reveal aspects of my own psychology which sometimes take me by surprise. On this occasion I found myself reacting to the topic from the medical students' viewpoint and with such an orientation I phrased the alternative title "Outgrabing the Mome Raths" or "If You Can Keep Your Head When All About You" An analyst would recognize at once my fondness for Lewis Carroll and also for Rudyard Kipling but in addition he would detect my instinctively defensive posture when considering the medical student's position during his four years at medical school. After all, if you can "outgrabe a mome-rath" (assuming you can first identify one) then you can confidently anticipate overwhelming any adversary, and certainly the need to keep one's head when all about you others are pointing the finger of blame in your direction — this quality surely is an essential aspect of surviving the typical medical curriculum as a student. Is this really the way it is, "You" against "Them"? I know that from time to time the medical curriculum appears to be a contest with the student as the protagonist who has to pit himself against a host of adverse circumstances. However, in reality I believe that we all realize that the pupil's failure is failure also for his teacher, and despite occasional appearances to the contrary, student and teacher have a great deal in common. It would be nice if we could drop the term "teacher" because of the restricting and authoritarian implication which the word tends to carry. Many of us in the teach-

* From the Robert P. Walton Address on Medical Education, AMSA Golden Apple Award Ceremony, Medical University of South Carolina, March 3, 1977.

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ing profession see the authoritarian role as defunct and outdated. We far prefer the style of Socrates who conducted learning experiences by question and answer. Yet another style is becoming increasingly popular, namely the Dewey or Heuristic which involves the students doing most of the questioning and answering with the teacher simply leading him on. My good friend and colleague, Dr. Barnett, has referred to the latter role of the teacher as being the "lead-learner" and I think that implies all that I feel. I believe that it is impossible to teach effectively without simultaneously learning.

I have said that the student and teacher have a great deal in common and they certainly have a common goal which in medical education might be described as "the elucidation and acquisition of knowledge, skills, and attitudes for the beneficial service of human kind in the role of a physician." I hope that statement does not sound pompous; that is not intended and although it is an idealistic description I do not believe it is unrealistic. I think it describes fairly and comprehensively, albeit broadly, our ultimate ambition as teachers and students of medicine. In making that statement, you will note that I referred to the "triple dimensions of learning," that is to say "knowledge, skills and attitudes." Teaching has come of age. It has evolved from being an art into an understanding that it is both an art and a science. We have come to recognize that there is more to medical education than the acquisition of facts.

Abraham Lincoln said, "If we could first know *where* we are, and *whither* we are trending, we could then better judge *what* to do, and *how* to do it." As to where we are, the American Medical Association in its journal of December 27, 1976 gave a numerical comparison of medical schools, applicants for medical schools and numbers of medical students for the year 1976 as compared with 1956. They thus demonstrated the changes which have occurred over a period of twenty years. In summary, we can observe that there has been a two hundred percent increase in the number of applicants for medical school. There has been a one hundred percent increase in the number of first year students accepted into medical school. In contrast with this side of the picture it is noteworthy that resources, in terms of number of medical schools, have only been increased by approximately forty percent. There-

fore, most of the increased number of students accepted into medical school has been accommodated by enlarging the size of each medical school class. For example, when I came to the Medical College of South Carolina in 1966, the size of the first year class was somewhere between seventy and eighty students; now, as you well know, it is in the vicinity of 165 students. In the meanwhile, of course, the physical plant has expanded and improved considerably; among other things this Basic Science and Dental Building was constructed, a superb medical sciences library was developed and speciously housed and many other good things were done. However, I think it is true to say that the number of teachers increased disproportionately less than did the number of students, and although I am lacking specific data I believe that this might be the case nationwide. I suspect that there are now more medical students per medical educator than there were twenty years ago. Is this significant? If this statement is true does it have any profound implications? In addition to improved physical facilities, new technology plus the behavioral insights which research by professional educators have provided have made medical teachers much more efficient. We really have become very good at disseminating *knowledge*. As teachers we have now learned to define educational goals and objectives. We can prepare and duplicate "hand-outs" and we can even construct self-instructional packages which enable students to proceed on their own and which may even cause us as instructors some qualms and visions of ultimate redundancy! We, as teachers, have become quite clever at manipulating audiovisual aids to instruct and even to entertain. Capitalizing on the type of "simulation situation" utilized by NASA and other organizations we can prepare students for real-life emergencies. Today we use mannequins and electronic cardio-pulmonary simulators to teach scientifically special skills. At times it may even appear that the living patient is superfluous for effective teaching (perish the thought . . .!).

This is impressive progress which may well negate the relative decline in the number of teachers. However, I have talked about knowledge and skills — what about that other dimension, attitude? What is encompassed by *this* term? Webster and the Oxford dictionaries share the following definition: "settled behavior or

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manner of acting as representative of feeling or opinion." For many years after the Flexner Report, our "feelings and opinions" were overwhelmed by the supreme importance of *scientific truth*, and let no one be misguided — in this year of our Lord 1977, "people die from organic diseases."¹ Those were the words of Dr. Patrick Byrne who by his own description is "an old, a very old, country doctor who found himself like Bottom translated in his middle age." Dr. Byrne is now the President of the Royal College of General Practitioners of Great Britain and some of you might have met him or heard him when he paid us a visit at the Medical University of South Carolina during our sesquicentennial year. He is now a leading medical educator, and he exhorts us to seek the utmost degree of competence in the science of organic diagnosis and organic cure. What is the etiologic diagnosis of this problem and how is it optimally managed? That is a question which permits no compromise and which we have a primary responsibility to answer. However there are other questions: Dr. Byrne, forty years a general practitioner, tells us that his patients ask him another question: "Who is he who will help my harassed person?" The patient asks who will care for them as a person, a being with a body and a mind and a soul and sensibilities? If we, as physicians answer "We will," then we are beyond science and we are expressing our attitude, our feelings and our opinions of our roles as physicians. Can we learn or can we be taught to be sufficient, to be adequate, to be competent to meet the total needs of our harassed patients? I am not sure, but I believe that we can. It may require a degree of priestly devotion and dedication but I think we can learn to practice medicine in physical, psychological and social terms. If we are to do this, we must start by getting to know ourselves and by developing ourselves as persons. Pope's oft quoted maxim "The proper study of mankind is man" is most meaningfully applied if we include ourselves in that study. This is a prime requisite if we are to become competent at delivering "person-oriented medicine," and it is doubtful that we can perform such an exercise without assistance from others.

This then is for me the one, major deficiency in medical education today. We teach sophisticated knowledge and exquisite skills but the mystery of living continues to be a highly personal matter. We try to accelerate attitudinal development

through learning experiences in behavioral science, but as Dr. Anthony Moore of Melbourne University, Australia, puts it "Medical education seems to deny that, at its foundation, the profession rests on a knowledge and understanding of human nature which with its affections, convictions, whims and sentiments is anything but a science."² There are other ways of assisting the development of "the compleate student" and one of them is described by Dr. Moore in his paper "Medical Humanities — A New Medical Adventure."³

What is my concluding message? In part, it is that we have too few teachers, either Socratic or Heuristic with whom students can relate on a one-to-one basis and share the experiences of living. If the patient-centered practice of medicine is good for the "harassed person," then the pupil-centered teaching of medicine will be of similar benefit to the distressed student, and I have known few if any students who were not experiencing some degree of distress. Students today are probably receiving a level of instruction in knowledge and skills which has never before been excelled anywhere at any time, but simultaneously there is a danger, in part because of this emphasis on knowledge and skills that the student may neglect his or her own personal "attitude" and human development. How do you guard against this: as students how do you meet the needs of your own evolving individualities? I suggest that you first have to realize and acknowledge that the cultivation of attitudes is just as important — and arguably even more important at certain times than the honing of scientific intellect and special skills. To once again quote the words of Dr. Moore: "The art of medicine depends on a different form of thought compared with its science. It is similar to that (form of thought) which is used to assess a moral position — or a poem. Much of science rests on scientific truths tested experimentally and monitored clinically. Beyond these proven truths is that area of human conviction where proof is not the warrant of truth, but where intuition, imagination, tradition, feeling and sentiment are the foundations of belief. To this world belongs everything about which civilized man cares most . . . Ethics, metaphysics, morals, religion, esthetics, discussions surrounding liberty, nationality, justice, love, truth, faith and knowledge."

As the poet Longfellow expressed it, "All the

lives of great men tell us we can make our lives sublime . . . ,” and through studying the works of great observers of human attitude we can broaden and mature our own perceptions. Sir William Osler recommended ten books for the bedside of the medical man . . . I leave you guessing as to the titles, but the exact list is not important; any ten, non-medical works of literature that you have gained inspiration from will do for your own bedside — but make sure that you continue to explore them regularly. It is true, I believe that formalized medical education today

is probably doing better than at any previous time in history, but now as ever, the person who would be truly educated has to learn many things without the assistance of his *living* teachers. □

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THE SOUTH CAROLINA PHYSICIAN AS AN EXPERT WITNESS — ENFORCED CHARITY OR FOR A REASONABLE FEE?

GARY J. BYRD, M.D.*

With increasing frequency, practicing physicians are being called into courts of law to serve in the capacity of a medical expert witness. Unless the physician is a specialist in legal medicine and thus well prepared by training and experience for the task, he is unlikely to be familiar with court proceedings. In a majority of cases, the physician is primarily a clinician who may be only vaguely familiar with his rights and duties as an expert witness. The current status of the law in South Carolina will be discussed; the alternatives available to the physician who is called to testify will be examined; and the basic rights of physicians under the United States Constitution will be given.

Witnesses in courts of law may be classified as witnesses of fact who respond to direct questions from the attorneys about disputed matters, and expert witnesses who may do one of more of the following: (a) express professional opinion; (b) come to conclusions; (c) respond to hypothetical questions; (d) explain professional or technical procedures to the court or (e) require modification of a question when a simple yes or no answer would be misleading.

The South Carolina legislature does not differentiate between witnesses of fact and expert witnesses. Furthermore, state law relates that any person summoned as a witness, who fails to attend, shall be fined for contempt, and is liable for all damages sustained due to lack of his testimony.¹ Additionally, it is expressed that any person summoned as a witness, who refuses to testify, shall be imprisoned until he consents to testify.²

A physician bound over or summoned by the State to testify as an expert witness in a case, or bound over at the instance of a felony defendant, shall receive as compensation from the county where the case is tried, five dollars in addition to the statutory witness fees.³ The statute allows simply five dollars, not five dollars per day. It must be pointed out that these statutes have not been tested in a court of record.

The right of the expert witness to be compensated has been decided by a supreme court ruling in nine states: Colorado,⁴ Florida,⁵ Illinois,⁶ Indiana,⁷ Iowa,⁸ Kansas,⁹ Nebraska,¹⁰ Pennsylvania,¹¹ and Rhode Island.¹² In each of the above mentioned decisions, except Nebraska, the absolute right of an expert witness to be paid for his time and knowledge was affirmed.

The testimony of a medical expert witness is

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based on his special education, training and clinical experience. In some instances the expertise of a professional witness has been defined as property. Specifically, a Pennsylvania ruling states that "the private litigant has no more right to compel a citizen to give up the product of his brain than he has to compel the giving up of material things."¹³

If indeed, expert medical testimony does have all of the characteristics of property, then unless compensation is tendered in exchange for the testimony, the witness will have been deprived of his property without due process of the law. This action would clearly violate his rights which are secured under the 14th Amendment to the United States Constitution. In an analagous manner, if an expert witness simply refuses to testify on the grounds that he does not elect to work under the conditions and is nevertheless subpoenaed, he can raise the 13th Amendment to the United States Constitution which prohibits involuntary servitude and on that basis protest being involuntarily impressed into the service of the state.

Should the South Carolina physician decline to testify as a medical expert because he believes he will not be reasonably and fairly compensated for his time and efforts, then the court may hold the physician in contempt of court.

The power of any court to cite such a recalcitrant witness for contempt is divided into two distinct categories, one criminal and the other civil. In criminal contempt, the individual is cited for transgressions already committed and may be punished by a fine or incarceration or both. In a civil contempt citation, the individual is usually incarcerated for failing to comply with a specific court order. The expert witness in this situation, according to the language of the United States Supreme Court in *Gompers v Buck's Stove and R. Co.*¹⁴ carries with him the keys with which he may unlock the jail at any time by simply yielding to the original demands contained in the court order.

This set of circumstances would seem to offer the sincere reluctant medical expert witness no alternatives and to place him at the mercy of the court. However, he need not capitulate at this point because in order for a judge to cite a witness

for civil contempt and to order him jailed until he complies with the judge's order, it is absolutely essential that the demands of the judge expressed in the order be reasonable and that he have specific authority in the law to make such demands. If the medical expert witness should conclude that the judge cannot meet these necessary criteria then he can test the validity of the contempt citation collaterally by way of an application for a writ of habeas corpus. This could result in the establishment of a test case which could be appealed to an appeals court or a court of record for judicial determination. At the hearing in the appeals court, should the state law conflict with the rights guaranteed to the physician under the 13th and 14th Amendments to the United States Constitution, then the former must yield to the latter.

In conclusion, it seems that this problem will be resolved with certainty only with adjudication. Prior to that occurrence, the local bar association, medical society, and judiciary could work out a mutually acceptable method of reasonably compensating the subpoenaed medical expert witness, as the statutory provision for an additional five dollars is not reasonable. □

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PERINATAL MORTALITY IN SOUTH CAROLINA: ANALYSIS WITH LINKED BIRTH AND DEATH CERTIFICATES

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INTRODUCTION

Most deaths in early infancy are due to conditions established before delivery or from stresses during the birth process itself. The same circumstances must, of course, also cause the loss of viable fetuses. The various conditions may differ in their relative importance for fetal and neonatal deaths, but they are present in both mortality categories. This has led to the introduction of the concept of perinatal mortality, a concept which provides for combining fetal deaths with loss in early infancy.¹

The Perinatal Statistical Report, 1975, is the first annual study of matched birth, neonatal death, and fetal death certificates. Hopefully, the ranking of hospitals by total perinatal mortality by size of maternity service will help to identify some of the problems in delivery of perinatal health care.

STUDY DESIGN

Five hundred grams (1 lb. 2 oz.) is the weight usually attained by a fetus by 20 weeks gestation. Prior to 20 weeks of pregnancy, the fetal lungs are too immature for extra-uterine existence. Because infants of less than 500 grams have a very poor probability of survival, these infants are not counted in this analysis of neonatal deaths on hospital maternity services.

Neonatal deaths for a particular hospital represent the number of live births (>500 grams) occurring in that particular hospital that later died in the neonatal period, regardless of where the neonatal death occurred. If two hospitals tied with respect to total perinatal mortality rate, the hospital with the higher number of deliveries was given the lower ranking.

There are variations in all statistics which are the result of chance. This characteristic is of particular importance in classifications with small number of events where small variations are proportionately large in relation to the base figure. As an example, small changes in the number of deaths or births in small population areas could result in large changes in corresponding rates. For this reason, rates for hospitals with small denominator bases should be used cautiously.

It should be realized that a bias of unknown dimensions is incurred when the perinatal mortality rate is used. This arises from the under-reporting of fetal deaths, which may vary in magnitude with time, and population subgroup.

RESULTS

More than 60 percent of the hospitals with maternity services in South Carolina have less than 500 deliveries per year. Approximately 24 percent of all live births (> 500 grams) occur in these smaller services but more than 28 percent of fetal deaths and 29 percent of the neonatal deaths occur in this group.

The total perinatal mortality rank for hospitals with less than 500 deliveries is significantly higher than each of the other hospital size groups. (Significant at $p < .01$)

This study shows that five South Carolina districts had higher percentages of total perinatal deaths than the percentage of total deliveries, the largest percentage differential (5.6%) occurring in the *Pee Dee District*. (Figure 1)

The survival rate (survival through the neonatal period) for the prematures (501-2500 grams) was 0.8969, corresponding to a neonatal mortality rate of 103.1 per 1,000 live births (> 500 grams). The survival rate for infants born weighing at least 2,501 grams was 0.9966, corresponding to a neonatal mortality rate of 3.4 per 1,000 live births (>500 grams).

South Carolina's Rules and Regulations Governing Vital Statistics require that infants born

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PERINATAL MORTALITY

after 20 weeks completed gestation be reported. The fetus of borderline gestational age may not be reported. Using the birth weight of 500 grams (1 lb. 2 oz.) which is that usually attained by 20 weeks gestation, hopefully, would reduce this underreporting — either the fetus weighs 500 grams and should be reported or it does not. Ideally, both the gestational age in weeks and fetal weight should be recorded and reported.

expect the total perinatal mortality to be approximately 21.7 per 1,000 deliveries and by 1980 19.3. If the neonatal rate experiences the same percentage decrease in the next five years as experienced between 1972 and 1975 (22.2%), the neonatal rate should be approximately 8.2. If the fetal rate continues to decrease at the same rate (9.6%) by 1980, we should expect a rate of approximately 8.2. If the fetal rate continues to decrease at the same rate (9.6%), by 1980 we should expect a rate of approximately 11.8. (Figure 2)

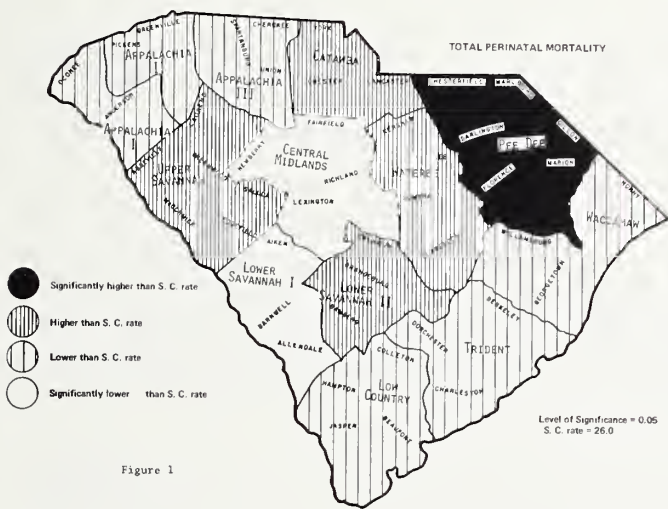


FIGURE 1

DISCUSSION

Much more is needed than an analysis of statistics by the Department of Health and Environmental Control. Consideration has to be given to the type of population served by the hospital. As in previous studies (1972), the small maternity service (less than 500 deliveries per year) has the highest mortality — both fetal and neonatal. Nine hundred and forty-two women were delivered out of the hospital. Mortality is inordinately high in this group (49/1,000) compared to the South Carolina rate of 26/1,000.

How many of these 46 perinatal deaths for out of hospital deliveries could have been prevented is a matter of conjecture. The important message is that perinatal mortality is lessening in South Carolina. There are many reasons for this reduction, i.e., decreasing birth rate, increasing availability of abortion, development of neonatal intensive care units, and the early identification and treatment of high risk maternity patients.

If the perinatal mortality rate continues to decrease at the 1972-1975 rate, by 1978 we would

Percent Decrease in the Number of Deliveries, Premature Birth Rate, Fetal, Neonatal, and Perinatal Death Rates, Between 1972 and 1975 South Carolina

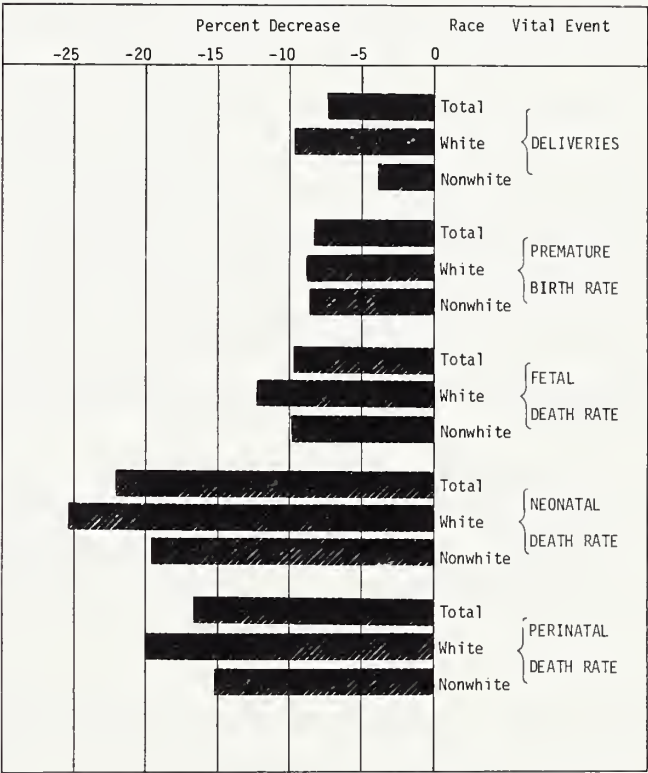


FIGURE 2

SUMMARY

The capability of the Department of Health and Environmental Control to link birth and death certificates offers an opportunity for close study of perinatal mortality in South Carolina. Areas of need can be closely identified in order to concentrate use of our limited resources. □

REFERENCE

(1) "Infant and Perinatal Mortality in the United States," NCHS — *Vital and Health Statistics*, Series 3, Number 4.

President's Page



MEMBERSHIP

All voluntary organizations that charge dues have problems with keeping their membership up or increasing their number.

I mention dues as a factor because although the PSRO concept was very unpopular in this state at one time and, for that matter still is in some quarters, it is a fact that the voluntary PSRO organization in this state which does not by law charge dues has about 600-700 more members than the SCMA which is a voluntary organization that does charge dues.

It is also a fact that very few active physicians in this state are not financially able to be members of their state professional organization.

There are approximately 3,000 licensed physicians in South Carolina, and 2,000 plus of these are in private practice. About 900 are in the academic area. The SCMA has approximately 1,700 members; and, at times, this difference in the number of physicians in the state and the number of physicians in the SCMA is used as reason to state that the SCMA does not represent the doctors in the state. Of course, if the SCMA does not, there is no one to do so.

I would like to present the following results of a survey by the AMA of the reasons that physicians do and do not choose to join the AMA, and these reasons would probably apply as well to the SCMA:

Question 1 — Reasons Physicians Choose to Join AMA

	<i>Percent</i>
1. Educational and insurance benefits	17.1%
2. National representation, legislative representation	49.8
3. Tradition, customary to belong, peer pressure	21.0
4. Ethical standards, public health	6.4
5. Other	5.7
	<hr/>
	100.0%

Question 2 — Reasons Physicians Choose Not to Join AMA

1. Money, financial costs, dues	23.6%
2. Disagree with AMA positions and policies	19.4
3. Lack of knowledge about AMA and its activities	23.0
4. AMA doesn't do anything for them	17.2
5. Free ride; get the benefits anyway	2.9
6. Other	13.9
	<hr/>
	100.0%

Now, with this information, I would like to see the membership of the SCMA which has been designated as the membership committee to go out among your colleagues who are not members and listen to their reasons for not joining our organization, and their criticisms and suggestions, and then convert them and bring them into the fold.

In my opinion, for every physician in this state to be a member of SCMA would be not only a great thing for the state association, but also for the medical profession as a whole.

Once again, let us preach unity of effort. So, members, get in those lost sheep.

Waitus O. Tanner, M.D.
President

AUXILIARY PRESIDENT'S PAGE



Mrs. Marge Adams, our Membership Chairman, contributes this month's article for the Journal.

Elise Cain, *President*

Dear Doctor,

Is your wife a member of the Medical Auxiliary? She should be, because we do some valuable things with the help and approval of the Medical Association. A few of these things are:

- 1. We evaluate community health and safety needs and when possible serve those needs with effective programs. Nationally we have over 500 different projects.
- 2. We raise funds for scholarships and loan programs.
- 3. We work for better informed citizens through our legislative programs and have some political clout through our political action groups.
- 4. We educate members and train leaders through workshops, seminars, and a Speakers Bureau.
- 5. Every member receives *FACETS*, a quarterly national magazine as well as state and county newsletters.
- 6. We offer friendship, leadership, and social activities to our members.

Mrs. Rufus H. Cain, Jr., our state president, has as her theme for this year "New Directions." Help us find our way by urging your wife to join us.

Yours for increased membership.
Marge Adams (Mrs. James F.)
Membership Chairman

P.S. If your wife is not a member take this home to her.

I am interested in:

Becoming a member of the S. C. Medical Auxiliary _____

Becoming a member of _____ (List your County Auxiliary)

Becoming a member-at-large _____

Organizing an Auxiliary _____

I am willing to invite a group to my home to discuss Medical Auxiliary _____

Your name _____ Address _____

Telephone No. _____

Complete and Mail to: Mrs. James F. Adams
1519 Kathwood Drive
Columbia, S. C. 29206
Phone 787-8868

Editorials

WARING LIBRARY SOCIETY

"One of those rare, fortunate men who are properly honored during their own lifetimes" — thus is Dr. Joseph I. Waring categorized by one of his many friends. The Medical University of South Carolina has announced that such friends are launching a program to develop the Waring Historical Library into a major center for research in the history of medicine and science.

The Waring Library Society, operating under the auspices of the non-profit Health Sciences Foundation of the Medical University, has been organized as an initial step. Officers of the new society are Dr. Leon Banov, Jr., president; Dr. S. Hope Sandifer, president-elect; and Dr. Layton McCurdy, secretary-treasurer.

"Much of what we know and have preserved from South Carolina's rich medical history we owe to Dr. Waring," remarked Dr. Banov. "He became our medical Thucydides, as it were, despite the demands of his busy practice as a pediatrician and the long hours of voluntary service in behalf of the public and his profession. The best way we can say thanks is to contribute to the further development of the excellent library bearing his name."

The Waring Historical Library now houses more than 6000 books, its nucleus coming from the collection begun in 1791 by the Medical Society of South Carolina in Charleston. The library also contains museum objects (such as old instruments, medicine chests, and saddle bags), theses of early day students, valuable papers and documents, and files of biographical and general material relating to the history of medicine in South Carolina.

Dr. Waring, Clinical Professor of Pediatrics at the Medical University, celebrates this year his 50th anniversary as a volunteer faculty member. He began publishing in leading history journals soon after beginning private practice in Charleston, in 1927. Nationally recognized, he has held offices and editorial positions in major historical



Joseph Ioor Waring, M.D.

organizations. For more than 17 years, he served as editor of the *Journal of the South Carolina Medical Association*, and his three-volume *History of Medicine in South Carolina* serves as an authoritative reference work.

"Through his work, Dr. Waring has made us proud of our rich traditions," continued Dr. Banov, as spokesman for the new Waring Library Society. "Our aim is to perpetuate these traditions through the best possible collection of historical materials housed in the best possible facilities."

CSB

ALCOHOL AND PREGNANCY

"Inspiring, bold John Barleycorn!
What dangers thou canst make us scorn!"
— Robert Burns

To the major medical dangers of imbibing should be added the syndrome described by DeBeukelaer and Randall in this issue of the *Journal*. Failure to thrive, mental deficiency, motor impairment, and multiple congenital anomalies can all owe to intra-uterine alcohol toxicity, although the exact mechanisms of such toxicity are still to be elucidated. How should this information be used in clinical practice? The Center for Disease Control has provided the following recent statement:

“Pregnant and potentially pregnant women should be advised that drinking ethanol during pregnancy may have an adverse effect on the fetus. The risk is substantial and serious when the woman chronically drinks 3 or more ounces of absolute ethanol (6 drinks) a day. What effect, if any, lesser amounts of ethanol have on the fetus has not been determined.”¹

DeBeukelaer and Randall plea for “renewed interest in measures to prevent and treat alcoholism.” *Recognition* of the alcoholic mother-to-be is the obvious first measure. That early recognition of alcoholism can be quite difficult is, however, well-known to all practicing physicians. A recent writer² offers the following helpful signs:

1. heartburn
2. morning sickness (including retching and vomiting)
3. tachycardia
4. hypertension
5. tremor, anxiety, tension, stress, insomnia
6. impaired glucose tolerance and glycosuria — “pseudodiabetes”
7. hepatic enlargement
8. macrocytosis.

Thus, all pregnant women should be screened for the above symptoms and signs to ascertain whether alcoholism might be present.

But wait a minute! Aren’t all of the above “early signs of alcoholism” also well-known manifestations of pregnancy?! As interest in the fetus as a “pharmacologic orphan” continues to accelerate, it occurs to us that recognition of the alcoholic mother and further definition of the extent to which fetal alcohol toxicity is dose-related are problems of great magnitude.

CSB

REFERENCES

1. Fetal alcohol syndrome. *Morbidity and Mortality Weekly Report*, June 3, 1977, p. 178 (vol. 26, no. 22).
2. Davis CN: Early signs of alcoholism. *JAMA* 238: 161-162, 1977.

PATIENTS’ COMPENSATION FUND: INTERIM REPORT

The Patients’ Compensation Fund became active and in full effect on July 1, 1977. By July 28, 346 individual physicians and 92 professional associations belonged to the funds, and \$501,013.46 had been collected in premiums. All premiums are paid directly to the fund; there are no commissions. All files are kept confidential; they are also kept completely separate from the files of the South Carolina Medical Association, which has been designated as the fund’s administrator.

The fund was created to pay that portion of any medical malpractice claim, settlement or judgment in excess of \$100,000 per claim or \$300,000 annual aggregate of all claims during any one year. Surcharge payments for participation in the

fund are 100 percent of the basic medical malpractice premium for the first year; this decreases to 75 percent for the second year, 50 percent for the third year, and 25 percent for the fourth year. The size of the fund has been set at a maximum of 4 million dollars. When the fund reaches this level, there will be no membership payments. Payments would be resumed when the fund subsequently fell to the 3.5 million dollar level.

The act establishing this fund, number 674 of the legislative year of 1976, was one of seven recommendations of the South Carolina Medical Injury Insurance Reparations Advisory Committee. The delay in activating the fund was due to a constitutional question regarding the language of

the act; this question was resolved in the 1977 legislative session. The act provides that membership shall be offered to all qualified Health Care Providers who can demonstrate an unrestricted license to practice and basic liability insurance of at least \$100,000 per claim and \$300,000 annual aggregate. Licensed Health Care Providers include physicians, nurses, oral surgeons, dentists, pharmacists, chiropractors, hospitals, nursing homes, and similar categories.

The fund's Board of Governors includes three members of the South Carolina Medical Association: Donald G. Kilgore, Jr., M.D., of Greenville; C. Tucker Weston, M.D., of Columbia; and Jack A. Evans, Jr., M.D., of Spartanburg. There are two consumer representatives: Mrs. Donna Weatherholtz of Charleston and Vivian Davenport, Ph.D., of Columbia. The two attorney members are Mr. Edward Buckley and Mr. Hugo M. Spitz, both of Charleston. The dental association is represented by W. C. McDowell, DMD, of Charleston and H. A. Schifferli, DMD, of Aiken. The hospital association is represented by Mr. George Rentz, administrator of Lexington County Hospital, and Mr. Dace W. Jones, Jr., administrator of Springs Hospital in Lancaster. The insurance industry is presented by Mr. Lee F. Brinkley, Jr., and Mr. Henry G. Turner, Jr., both of Columbia. The state's Chief Insurance Commissioner, Mr. John W. Lindsay, serves as the board's chairman.

All questions concerning the Patients' Compensation Fund should be directed to Mr. Blake T. Williams, Fund Administrator, P. O. Box 3834, Columbia, South Carolina 29230 (telephone number 803-252-7399). The members of the Board of Governors stand ready to serve the Health Care Providers of South Carolina in providing this excess coverage for malpractice claims. It is our opinion that the fund is off and running, on a sound administrative footing, and well equipped to meet the needs of all Health Care Providers in our state.

C. Tucker Weston, M.D.
Chairman of the Operations Committee,
Patients' Compensation Fund

BRIEF SUMMARY OF PRESCRIBING INFORMATION

ANTIMINTH[®] (pyrantel pamoate) **ORAL SUSPENSION**

Actions. Antiminth (pyrantel pamoate), has demonstrated anthelmintic activity against *Enterobius vermicularis* (pinworm) and *Ascaris lumbricoides* (roundworm). The anthelmintic action is probably due to the neuromuscular blocking property of the drug.

Antiminth is partially absorbed after an oral dose. Plasma levels of unchanged drug are low. Peak levels (0.05-0.13 $\mu\text{g/ml}$) are reached in 1-3 hours. Quantities greater than 50% of administered drug are excreted in feces as the unchanged form, whereas only 7% or less of the dose is found in urine as the unchanged form of the drug and its metabolites.

Indications. For the treatment of ascariasis (roundworm infection) and enterobiasis (pinworm infection).

Warnings. *Usage in Pregnancy:* Reproduction studies have been performed in animals and there was no evidence of propensity for harm to the fetus. The relevance to the human is not known.

There is no experience in pregnant women who have received this drug.

The drug has not been extensively studied in children under two years; therefore, in the treatment of children under the age of two years, the relative benefit/risk should be considered.

Precautions: Minor transient elevations of SGOT have occurred in a small percentage of patients. Therefore, this drug should be used with caution in patients with preexisting liver dysfunction.

Adverse Reactions. The most frequently encountered adverse reactions are related to the gastrointestinal system.

Gastrointestinal and hepatic reactions: anorexia, nausea, vomiting, gastralgia, abdominal cramps, diarrhea and tenesmus, transient elevation of SGOT.

CNS reactions: headache, dizziness, drowsiness, and insomnia. Skin reactions: rashes.

Dosage and Administration. *Children and Adults:* Antiminth Oral Suspension (50 mg of pyrantel base/ml) should be administered in a single dose of 11 mg of pyrantel base per kg of body weight (or 5 mg/lb.); maximum total dose 1 gram. This corresponds to a simplified dosage regimen of 1 ml of Antiminth per 10 lb. of body weight. (One teaspoonful=5 ml.)

Antiminth (pyrantel pamoate) Oral Suspension may be administered without regard to ingestion of food or time of day, and purging is not necessary prior to, during, or after therapy. It may be taken with milk or fruit juices.

How Supplied. Antiminth Oral Suspension is available as a pleasant tasting caramel-flavored suspension which contains the equivalent of 50 mg pyrantel base per ml, supplied in 60 ml bottles and Unitcups[™] of 5 ml in packages of 12.

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LETTERS TO THE EDITOR

To the Editor:

The American Medical Association is widely considered to be the voice of American medicine, and to represent faithfully the wishes of the doctors in the practice of private medicine.

It is doubtful that any large percentage of the members of the AMA are in favor of socialized medicine, now called National Health Insurance; but the AMA is in favor of it, and has its own bill, HR 1818, to establish a system of National Health Insurance.

From this it might be inferred both that the AMA does not represent its members faithfully, and that the members are not aware of what the AMA is doing.

Specifically section 44 (Assigned Risk Pools) gives the state the authority to set up assigned risks pools for insurance carriers, and requires carriers to accept from the pools such risks under the program as may be assigned to it. Obviously this will standardize through state control the insurance industry, or more specifically socialize it.

Section 45 (Establishment Of Health Insurance Board) creates "a Health Insurance Board which shall consist of fifteen persons, including the Secretary of Health, Education and Welfare and the Commissioner of Internal Revenue. The remaining members, not otherwise in the employ of the United States, shall be appointed by the President, with the advice and consent of the Senate, — The Chairman of the Board shall be selected annually by members of the Board. The appointed members of the Board shall be selected from persons who are specifically qualified to serve on such Board by virtue of their education, training, or experience, and shall include at least seven persons who are practicing doctors of medicine, one practicing doctor of osteopathy, and one practicing doctor of dentistry recommended by the appropriate national professional organizations, and each of whom shall be licensed in a State as a doctor of medicine, osteopathy, or dentistry. — The Board may appoint such special advisory professional or technical personnel or committees as may be needed to carry out the purposes of this title."

"Duties Of The Board. (b) The Health Insurance Board shall

(1) Prescribe such regulations as may be necessary to carry out the purposes and provisions of this title:

(2) Establish minimum Federal standards for the use of State insurance departments in determining whether an insurance company and plan are qualified under this title;

(3) In consultation with carriers, providers of services, and consumers, plan, review, and develop, where necessary programs whose purposes are to provide for maintaining the quality of medical care, and the effective utilization of available financial resources, health manpower, and facilities, through utilization review, peer review, and other means which provide for the participation of the insurance carriers and the providers of services."

It ought to be apparent to the most casual reader that this legislation sets up a board of fifteen members to be appointed by the President, with complete authority to govern the insurance industry of the country, and the practice of medicine of the country. It can in addition set up the necessary bureaucracy to do these things, with no limitation.

This is the plan which is being pushed by the AMA, in the name of its members, and in point of fact, by the majority vote by its House of Delegates.

Anyone who wishes to preserve his personal professional freedom should start to do so now, and a good way to start is by joining and supporting the Association of American Physicians and Surgeons which is mounting an all out campaign to publicize the facts given above and to counteract the betrayal of the practice of private medicine by the American Medical Association and its bureaucracy.

Should you ask, "Why should the AMA bureaucracy want to do this?", what difference does it make to a bureaucrat where his salary comes from as long as he gets it?

Thomas Parker, M.D.
123 Sumner Street
Greenville, South Carolina 29601

To the Editor:

The question — who should treat breast cancer — proposed as a result of three articles published in the April '77 issue of JSCMA could properly be substituted for a broader question; that is, who should treat cancer? For the most part, management of patients with malignant disease — if existing expertise is to be exploited to a maximum — should be based upon a multidisciplinary approach.

Concerning the questions of informed consent, of the patient's dictation of his own treatment, or "doctor shopping," the treatment modalities have to be such so they will stand the scrutiny of others as the patient will seek information from a variety of sources. The physician has to level with the patient. When a management problem has been exposed to multidisciplinary discussion and the ideas expressed, with both the pros and cons, and with proper emphasis upon risk factors and limitations of the particular therapeutic modality are explained to the patient with the attitude of allowing the patient to participate — other than being dictated to — in the management of his disease, the result is to vastly increase the trust, understanding, and

respect between the patient and physician.

John W. Schofield, M.D.
341 West Palmetto Street
Florence, S. C. 29501

To the Editor:

For over 30 years I have had an interest in the prevalence and practice of "Root Medicine" in the United States. My particular focus has been extended toward the methods being utilized in the Southeast.

Primarily I am seeking further information as to those individuals who have a reputation of being able to "put a spell on" or "take a spell off" of a person; secondly, whether or not herbs or "magic" symbols are utilized in their practice.

I would greatly appreciate anyone who is aware of this "folk" therapy being practiced in their locale dropping me a note and I will give them a telephone call.

Ramsey Mellette, M.D.
80 Barre Street
Charleston, S. C. 29401



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THE 126TH ANNUAL CONVENTION OF THE AMERICAN MEDICAL ASSOCIATION*

JOHN C. HAWK, JR., M.D., DELEGATE**

San Francisco — city of many names — indeed must be the favorite Convention City of America. This is one bandwagon that I am glad to get aboard, as I certainly enjoy San Francisco more with each visit.

There is one thing about having the AMA's Annual Meeting in San Francisco: We never have any difficulty getting a full delegation to attend — nor any difficulty in getting our wives to accompany us. This year we had the biggest group from South Carolina that I have even seen at an AMA Meeting. I am sure that everyone had a grand time.

Since we stayed at the Fairmont, Headquarters Hotel, we were most involved with those whose main interests lay in the House of Delegates. This group included Harrison Peeples and John Hawk, Delegates, with their wives Libby and Nancy; Tucker Weston and Ray Gillespie, Alternate Delegates, accompanied by Polly and Myrtle; Waitus Tanner, President, with Jenny; Halsted Stone, Chairman of Council, and Mary Jo; Dessie Gilland, Past President and recently elected Alternate Delegate to start next year, with Mary Lib; and Charles Johnson, our efficient Executive Director. Also taking part in the House of Delegates proceedings, and in our S. C. caucuses, were Mac Ball, attending as President of AAPS, with his wife Carroll, and two MUSC student representatives, Stewart Haskins and Stuart Ball. John Fagg, resident member of the Council on Constitution and Bylaws, and Nancy, joined us when his other commitments permitted.

Also joining us on some occasions were Betty and Ernie Lathem, Linda and Ted Roper, Billie and Wayne Brady, Hans Heller, J. J. Curry of Myrtle Beach, and Dr. Albert Sabin, who gave one of the featured addresses to the Auxiliary.

The SCMA Delegation again had a hospitality room throughout the meeting, and again would like to emphasize to all South Carolina members of the medical profession, including residents and medical students, that they are most welcome to visit in the hospitality room at all AMA meetings, and to participate in all activities of the SCMA Delegation.

CALIFANO ADDRESSES HOUSE OF DELEGATES

It has become customary for a high government official, even the President on occasion, to address the AMA each year. This year, it was Secretary of HEW, Joseph A. Califano, Jr., who spoke to the opening session. His address has been widely publicized in both the lay and the medical press, but I still cannot refrain from some comment upon it. His clear emphasis was upon cost containment. He undoubtedly rec-

ognized that he faced some degree of justifiable hostility in his audience, brought on by the HEW's release of erroneous figures about Medicare income of individual physicians (for which he has apologized). However, this did not make him mince any words in his prescription for the AMA. At one point, he stated, "— reasonable costs has not been the strong suit of either American medicine or most of its physicians," and "we see that not as the fault of affluent doctors — but as the most serious shortcoming of the health care system." Even this relatively favorable reference to "affluent" doctors seemed ill-timed and out of place, coming from a man who last year reported over \$500,000 in income from his law practice.

I was struck by his repeated allegations that the "health care industry" is virtually "non-competitive." He implied that the rise in health care costs is due in large measure to the alleged "non-competitive, free-spending, third party payor world." It was interesting that although many of the figures which he utilized to indicate rising health care costs compared 1965 with current expenditures, he did not see fit to relate the rise as being due in considerable measure to the intrusion of government in the health care field, through Medicare and Medicaid (in 1965).

His apparent prescription, however, for the alleged lack of competition, is to effect further government control, that is *eliminate all competition*. He decried the mal-distribution of health resources and services, including the distribution in physicians. He did not comment on the *dis-incentive* to physicians to serve in ghetto areas, or to provide well-organized services to Medicaid and Medicare patients, posed by the continuing threat of having income data, frequently erroneous, published by his office.

He rightly stated that "today the health care challenge is dramatically different from what it was 10-20 years ago. Today the leading killers are not communicable disease, but accidents, heart disease, cancer, cirrhosis of the liver — which are often caused by people's life styles or by hostile influences in the environment." In discussing this, he mentioned cigarette smoking, alcoholism, obesity, and accidents, but did not acknowledge that government, while willing to attack the questionable carcinogenic effects of artificial sweeteners, has been unwilling or unable to tackle in a straight-forward, effective manner, the larger and proven problem of carcinogenicity of tobacco.

He stated that American consumers and taxpayers are demanding that something be done about the health care system (an unfounded assumption, in my opinion). His solution, given with a thinly veiled threat, was as follows:

"So the government — representing the people and the consumers — must play an increasing role in health care."

*June 18-23, 1977, San Francisco, California

**30 Bee Street, Charleston, S. C. 29403

We will fulfill our responsibility best with your help and cooperation; *but we must fulfill our responsibility, nonetheless.*" (Emphasis added)

The response to Mr. Califano's speech was polite, but not enthusiastic.

Highly enthusiastic and appreciative, however, was the response to the brief remarks of Dr. Theodore Cooper, former HEW Assistant Secretary of Health, when he received the Arnold and Marie Schwartz Award in Medicine for contributions as a clinician, investigator, and medical administrator. He got a laugh from the audience when he addressed them as "fellow businessmen." He took several digs at the Califano speech, and gave an effective refutation to some of the misconceptions of the Secretary. A few sentences from his remarks are worth quoting:

"... it is the fashion these days to talk about what's wrong with medicine. And indeed sometimes to either directly or unwittingly characterize its practitioners as avaricious, insensitive and even incompetent. . . . But at the same time demand; no I guess promise would be more correct — promise the people that medicine can not only cure or prevent all real diseases, but also cure the economically dependent and culturally determined ills of our society. Therefore, it's a paradox, indeed schizophrenia, based really on the great success of the past decades of American medicine. Its success is the reason [for the demand] — in failures, people do not want more of a bad thing. In fact, one could rightly say, I think, never has anything sounded so bad that has been so good. . . .

. . . Success breeds expectation. And that expectation breeds distortion, and political distortion of the value that the public puts on health and medical service drives expectation, increases demand, to a point where our national aspiration clearly is outdistancing our resources; and this disbalance has become a major if not *the* major factor in this cost escalation that you heard about. . . . Now it is an interesting observation that in the medical field, as opposed to say in the energy field, we hear proposals for increased productivity at restrained or lower costs, but *not* accompanied by any call for conservation by the consumer. And the reason, I think, . . . why that call is not made is that . . . the health care system or industry, is supposed to have a different kind of economics. And the reason that it is said to be different is because the doctors make it so. To intimate that consumers or patients are prevented from or prohibited from in general seeking or using less of services by doctors reflects ignorance of the doctor-patient relationship and its potential, and to a larger extent, ignorance of human nature."

Later, Dr. James Sammons, Executive Vice President of the AMA, took strong exception to Califano's remarks, particularly the description of medicine as non-competitive. He remarked to one news reporter, "His doom-and-gloom dissertation is to build a climate for NHI proposals." In his appeal for unity among the medical profession, Dr. Sammons referred to government bureaucracy as a "cancerous, relentless, mindless blob of a force."

PRESIDENTIAL ADDRESSES

Dr. Richard Palmer, in his report as out-going President, chose the topic of "Rationed Care, Rationed Professionalism." He stated succinctly, "What must be universally recognized is that cost control is *people control*. It is manipulation of receivers as well as providers of health services. For regardless of how the various economic, or partially economic restraints would differ in detail, they pose a joint threat: *the rationing of care*. Even our critics must perceive that care

cannot be substantially contained in cost without being apportioned."

He cited numerous examples of governmental regulations which will ration care through cost control. He ended with the statements:

"In the face of government controls that basically would mean people control, we must work for human application."

"In the face of government plans that would ration care, we must work for the sufficiency of good care."

In his inaugural address, new President John H. Budd spoke on "Voluntary Association Versus Compulsory Government." He talked at length in favor of the AMA's NHI Bill and contended that it "would bolster and protect the private focus of care and expand the present system." He suggested: "So think of our proposal not as National Health Insurance, but as the people's health assurance." Although his advocacy of the AMA Bill might be persuasive to those who have not studied the Bill personally, it failed to convince the knowledgeable few who are aware of the compulsory aspects of the Bill, and the all-encompassing powers which would be delegated to the Health Insurance Board of fifteen persons, which would include the Secretary of HEW and the Commissioner of Internal Revenue.

Dr. Budd noted the harassment of the medical profession by the Federal Trade Commission and stated that the FTC appears to regard our profession as a "trade." He cited the need to strive continually to increase the public confidence in the medical profession and the AMA, and he listed some of the public-spirited activities of the AMA.

In closing, he urged the Delegates to enlist physicians of all categories into membership in the AMA, and concluded, "Let our federation, which is the House of Medicine, be filled, for increasingly as dangers ride herd against us, this home is our castle."

MAJOR ISSUES

The Delegates were confronted, as usual, by a huge volume of reports, resolutions, and other matters for their deliberation. The main issue was again that of National Health Insurance, which has dominated several previous conventions.

Two major reports and eight resolutions on the AMA's program of National Health Insurance were referred to Committee B, where lengthy hearings were held. These have been reported in considerable detail in the June 27-July 4 issue of the *American Medical News*. A salient observation was made by Dr. William S. Hotchkiss of Virginia, who was later named to the important Judicial Council. He remarked, "I find very few doctors who are aware of the provisions of the AMA Bill, and even less who have actually had it in their hands and studied it." The Louisiana State Medical Society endeavored to remedy this deficiency of knowledge by having available copies of the Bill (H.R. 1818) printed in such a manner as to provide space for annotated comments and analysis opposite each page of the Bill.

Despite much testimony against the AMA's NHI Bill, the Delegates voted overwhelmingly to support the Reference Committee's recommendations that the AMA continue to sponsor its Comprehensive Health Care Insurance Act.

Two amendments were adopted: One was that the Board be directed to analyze the Bill and report back to the House at the 1977 Interim Meeting on whether or not the Bill might nationalize medicine; and that county and state medical societies be invited to submit their views on NHI within 60 days.

The second amendment was a proposal by past President, Russell Roth, M.D., to change all references in the AMA Bill from "national" to "comprehensive."

Your Delegation voted *against* the Reference Committee's

recommendation for approval of the AMA's NHI Bill. By the time this report is published, the SCMA Council will have considered the action it will take in submitting an opinion on NHI to the AMA.

A second item of major importance, and the subject of considerable discussion both in the Reference Committee and on the floor of the House, was the AMA's position on H.R. 2222, an amendment to the National Labor Relations Act, which would include interns and residents within the scope of "professional employees" for the purposes of organizing and collective bargaining under the Act.

Both Dr. John Fagg, Chief Resident in Plastic Surgery at the Medical University of South Carolina, and I, had testified in April, 1977, before the Subcommittee on Labor Management Relations of the Committee on Education and Labor *against* H.R. 2222, and we both spoke against it at the Reference Committee. I also spoke against it on the floor of the House. However, your Delegation was again on the losing side as the House of Delegates voted to reaffirm the position previously taken by the AMA in support of H.R. 2222.

There were many other topics of importance upon which I shall not comment. The question of whether to have a fulltime president for the AMA was referred to the Board for further study, and will be reported at the 1977 Interim Meeting.

LAETRILE

The concern of the Delegates about the position of the AMA on Laetrile was evidenced by the amount of discussion and debate, and the fact that three separate printed amendments were offered by various delegations. The final Resolution adopted stated simply: "It is the position of the American Medical Association that Laetrile is a substance which has no proven value as a drug." The proposed amendments, as well as the adopted substitute Resolution were referred to the Board of Trustees and the Council on Scientific Affairs for information and any possible action.

SOUTH CAROLINA RESOLUTION

With the concurrence of Council, the South Carolina Delegation introduced a Resolution (No. 34) expressing concerns about an experimental program under P.L. 92-603, which would allow the Social Security Administration to make Medicare payments for the *non-supervised* services of physician extenders. Dr. Harrison Peeples, who wrote the Resolution, also helped to clarify it with the Reference Committee, where it was initially misunderstood. The Reference Committee noted that the Council on Legislation has developed legislation, now introduced in Congress, which would provide for Medicare reimbursement for physician extender's services to the extent recognized under State Law, *if* such services are rendered under the supervision and direction of, and billed by a physician. A substitute Resolution by the Reference Committee, expressing our intent in somewhat different

form, was referred to the Board of Trustees in order to assure that there would be no conflict with legislation developed by the Council on Legislation.

ELECTIONS

Dr. Tom E. Nesbitt, Speaker of the House of Delegates, was named President-elect without opposition, and William Y. Rial of Pennsylvania was elevated to Speaker of the House by acclamation. In a close contest, Dr. Harrison L. Rogers of Atlanta was elected the new Vice-Speaker, over Dr. James E. Davis of Durham, North Carolina, and Dr. William J. Lewis of Dayton, Ohio. In the election of Trustees, the only real surprise came when Dr. James Blake, who had led the balloting four years ago, failed to be re-elected. Drs. Hoyt Gardner and Daniel T. Cloud were re-elected to four-year terms. New Trustees for four-year terms are Dr. H. Thomas Ballentine of Boston, and Dr. George H. Mills of Hawaii. Dr. Charles Max Cole of Texas will fill the one-year unexpired term of the late Joseph T. Nelson, M.D.

One of the losing candidates for Trustee was Dr. William Mangold, a resident, who has been very active in the AMA, including serving on the Council on Legislation. He had enough support to remain in contention until the final run-off with Dr. Cole, and told the House, "I'll be back."

SOUTHEASTERN STATES COALITION

For many years, South Carolina has been a member of the Southeastern States Group organized primarily for social purposes. This year we had an innovation. A special committee had drawn up a set of rules for the operation of the Southeastern States Coalition, and this year for the first time we met as a group for breakfast on Sunday morning, June 19, at which time all the candidates for office appeared before us for a brief presentation and to answer specific questions. It was felt by all that this was worthwhile and informative and that it saved the individual state caucuses, as well as the candidates, a great deal of time.

CONCLUSION

This will be my last official report of an AMA Convention as Delegate from the SCMA, since my term as Delegate will end after the 1977 Interim Meeting, which will be reported by Dr. Harrison L. Peeples. It has been a high privilege to attend AMA meetings in an official capacity, and I hope that I have represented the physicians of South Carolina properly. Although I look forward to my term as President of the SCMA next year, I must admit to some regrets and a certain feeling of loss as I leave the Delegate position. However, I shall anticipate even closer ties with the SCMA membership next year, and will enjoy the privilege of communicating with you through the *President's Page*. I wish to express my sincere gratitude for the opportunity to serve the Association as Delegate in the past, and now as President-elect.

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The following physicians are actively seeking practice appointments in South Carolina:

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GENERAL SURGERY — Age, 36. Yale Univ. School of Medicine, 1968. Residency, Yale, New Haven Hospital, 7/69-7/70. Licensed in S. C. and Connecticut. Board certified. USAF, 7/70-10/77. Seeks industrial or school health position in large metropolitan city in the Midlands or Up-state regions of the state. Salary open. Available 10/77.

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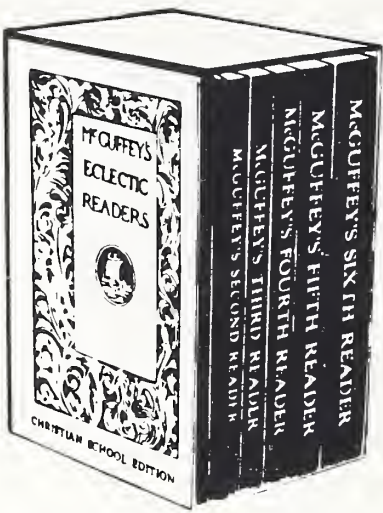
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The Medical University of South Carolina Division of Continuing Education announces a Family Practice Review and Recertification Course to be held September 25-October 1, 1977 at the Kiawah Island Inn, Charleston, South Carolina. Forty-one AAFP and AMA-PRA Category I Credit Hours will be awarded. For further information, contact Vince Moseley, M.D., MUSC, 171 Ashley Avenue, Charleston, S. C. 29403.

A continuing Medical Education Symposium on "Office Management of Common Emotional Problems" will be held on Tuesday, October 11, 1977 at the William S. Hall Psychiatric Institute in Columbia, S. C. No registration fee is required. AMA Category I Physician's Award Five Hours — AAFP Credit Requested.

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THE MANAGEMENT OF METASTATIC CARCINOMA OF THE PROSTATE

WILLIAM R. TURNER, JR., M.D.*
STEPHEN N. ROUS, M.D.*

Carcinoma of the prostate remains one of the most prevalent malignancies among males in the United States. It results in 18,000 fatalities each year making it the leading cause of cancer deaths in males over 50 years of age and approximately 50,000 new cases will be diagnosed each year.¹ Recent news releases concerning new methods of treatment of adenocarcinoma of the prostate have re-enforced the fact that with all of our present modes of therapy, we have been unable to extend the life span of patients with adenocarcinoma of the prostate. Our purpose is to briefly review standard therapy and the most promising of the new modes of treatment for this disease.

Unfortunately, most carcinomas of the prostate already have distant metastases at the time of initial presentation and for these Stage D lesions only palliative therapy has thus far been available. In 1941, Huggins demonstrated that adenocarcinoma of the prostate was responsive to hormonal manipulation.³ Since that time the therapy of Stage D carcinoma has been limited for the most part to endocrine manipulation.² Early in the history of hormonal treatment of metastatic carcinoma of the prostate estrogen

was shown to induce remissions in approximately 80 percent of cases. Recent work by the Veteran's Administration Cooperative Study emphasizes the high percentage of cardiovascular complications in patients treated with a daily dose of 5 mg. of Diethylstilbestrol. The data further demonstrated that palliative treatment with estrogen does not extend the life span and, in fact, the patient may die of cardiovascular complications as rapidly as from carcinoma of the prostate. They concluded that the 5 mg. dose of Diethylstilbestrol was too high and recommended that therapy be withheld until the patient was symptomatic.³ Since that time, Diethylstilbestrol regimens have ranged from 1 mg. to 3 mg. daily depending upon whether one believes that it is necessary to totally suppress serum testosterone. Orchiectomy seems equally effective as estrogen and there is no advantage to a combination of the two.⁴ Others feel that palliation is indicated when the diagnosis is made.⁵ It must be kept in mind that although longevity is not increased there is no question that the quality of life is vastly improved. This recent data make it clear that patients should not be begun on hormonal manipulation without a clear diagnosis of prostatic adenocarcinoma.

* Department of Urology, Medical University of South Carolina, 80 Barre St., Charleston, S. C. 29401

METASTATIC CARCINOMA OF THE PROSTATE

A large portion of the total human androgens are produced in the adrenal and thus surgical or medical ablation of the adrenal has offered another palliative mode of therapy for carcinoma of the prostate. Our present data, however, indicate that these patients usually survive for less than one year.⁶ Hypophysectomy has proven to be superior to the adrenalectomy but again the palliation is normally of short duration.

Palliation of painful metastatic lesions may be attained by radiation to the specific lesion or in some cases radioactive phosphorus, which when given after stimulation of lesion with testosterone, will often provide significant relief from bone pain.

Several other classes or agents are available for palliation and among them are the antiandrogens. A classic example is cyproterone acetate which works by competitive androgen antagonism. It was first applied to carcinoma of the prostate by Scott who noted that patients seem to respond to cyproterone acetate therapy at a rate which would equal their response to estrogen or orchiectomy. After the patient failed to respond to estrogen or orchiectomy, they would no longer respond to cyproterone acetate. Cyproterone acetate, therefore, probably adds no significant effectiveness over estrogens, orchiectomy or both.⁷

Flutamide is a non-steroidal antiandrogen. Prout reported the use of Flutamide and concluded that the serum testosterone levels were never depressed and also sexual potency was not altered. Gynecomastia did occur in several of his patients and active tumor cells were still noted in the prostate while the patients were under therapy.⁸ At the present time, Flutamide seems to offer no advantage in the palliation of carcinoma of the prostate other than the possibility that one may be able to bypass the complication of impotence. At present, the data are not sufficient to suggest that this drug is superior to the routine methods of palliation. Murphy felt that other non-steroidal chemotherapeutic agents may offer more promise than Flutamide and felt that an appropriately designed study would be necessary to test the effectiveness of this agent against Diethylstilbestrol.⁹

Estracyt, an estramustine phosphatase, has

been used extensively in Scandinavia and has the advantage of both parental and oral form. Murphy has reported estracyt as an excellent adjunct to the treatment of carcinoma of the prostate without having the toxicity expected from equal doses of mustard nor the endocrine side-effects of a commensurate dose of estrogen.⁹ Although estracyt is still a restricted drug and not available to general use, it seems to have great promise in the palliation of carcinoma of the prostate.

At the present time, the two most useful therapeutic drugs for treatment of metastatic carcinoma of the prostate are 5-Fluorouracil and cytoxan. Murphy has stated that both of these drugs out-perform standard hormonal therapy in subjective response, pain relief, and Karnofsky's performance scale. In a comparison between the two drugs, cytoxan appears to have demonstrated a greater activity against prostatic carcinoma than 5-Fluorouracil. The percentage of partial regressions seem to have been approximately equal but cytoxan shows fewer patients in progression in the overall study. Cytoxan has also been somewhat easier to manage having required only one dose reduction per 23 weeks of treatment as compared to one dose reduction per 10 weeks of treatment with 5-Fluorouracil.⁹

The Medical University's Department of Urology is part of a national cooperative oncology group studying carcinoma of the prostate in the Veteran's Administration Hospitals. We will place into effect a protocol this summer using five drugs: Methatrexate, 5-F.U., Alkeran, Prednisone and Vincristine. This regimen has been used by Paulson¹⁰ and his remission rate is very encouraging, approaching 30 percent of patients who are no longer responsive to hormonal manipulation. There are several other protocols being evaluated at the present time utilizing many of the new chemotherapeutic drugs but it would appear at this time that either cytoxan alone or a combination of several drugs gives superior results.

Numerous new methods of therapy are being applied to carcinoma of the prostate and they carry with them the hope that we may be able to extend the life span of patients with metastatic carcinoma of the prostate. □

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ANESTHETIC MANAGEMENT OF A PATIENT WITH OSTEOGENESIS IMPERFECTA UNDERGOING CESAREAN SECTION

J. ROGER BULLARD, M. D.*
CALVERT C. ALPERT, M. D.**
WILLIAM F. JAMES, JR., M. D.***

Osteogenesis Imperfecta (O.I.) is an inherited autosomal dominant disorder characterized by bony fragility, osteoporosis, middle ear deafness, blue sclera and skeletal deformities secondary to repeated fractures. These patients may also manifest an altered metabolic state with increased serum and urine inorganic pyrophosphate, decreased platelet aggregating and increased basal metabolic rate.¹ Some patients have also exhibited increased oxygen consumption and elevated serum thyroxine.²

A mild hyperthermia with excessive diaphoresis appears to be a common feature in patients with O.I. They even share certain similarities such as autosomal dominant inheritance, connective tissue abnormalities and elevated serum inorganic pyrophosphate with patients manifesting malignant hyperpyrexia.³ Even though the hyperthermia demonstrated in

patients with O.I. does not appear to be a malignant type, the biochemical and clinical similarities of the two should be a part of any anesthetic consideration. A disease free parturient with a family history of O.I. should be handled with suspicion in that the fetus may be suffering from the disease; and O.I. occurring in the parturient is doubly challenging in that both mother *and fetus* may be suffering from the malady.⁴ The combination of these bony abnormalities and disorders of energy metabolism present unique problems for the anesthesiologist. The following case report illustrates our handling of this particular syndrome in a patient that recently presented at our institution.

CASE REPORT

The patient was a 22-year-old, 1.37 meters tall primagravida weighing 45.5 kg, with a history of multiple lower extremity fractures beginning early in childhood. The diagnosis of O.I. was made at age 16. Her family history included a mother, siblings and several maternal aunts and uncles with short stature and histories of pathological fractures.

* Assistant Professor of Anesthesiology, Obstetrics and Gynecology

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OSTEOGENESIS IMPERFECTA

She was followed in the High Risk Obstetric Clinic where physical examination revealed in addition to her pregnant state, several scars and deformities of both lower extremities, blue sclera, and severe thoracolumbar kyphoscoliosis.

Her prenatal course was complicated only by mild gestational glucose intolerance which was treated with an 1800 calorie American Diabetic Association diet. Laboratory tests including thyroid functions, clotting studies, CPK and CBC and urinalysis were all within normal limits, and audiology testing revealed no evidence of otosclerosis. The orthopedic service was consulted and concurred in the diagnosis of O.I., and genetic counseling was obtained. After obtaining satisfactory fetal maturity studies, the patient was scheduled for an elective Cesarean section. The patient was seen on the preoperative anesthetic visit and the anesthetic problems peculiar to her case were discussed. The patient requested that she not receive a "spinal" anesthetic, but was agreeable to a continuous epidural technique, and informed consent was obtained. On the morning of surgery, the patient

was brought to the operating room and placed on the operating table with a slight elevation of the right hip to avoid aortocaval compression. An intravenous infusion of 5% Dextrose in Lactated Ringers was started and 500 cc was rapidly infused through a 16 gauge teflon IV catheter. The patient was monitored by a blood pressure cuff, ECG and a precordial stethoscope. A cooling blanket had been placed on the table and the patient's temperature was monitored by an axillary probe and preparations were made in case of any sudden temperature rise.

After prepping and draping, the epidural space was entered and identified by the loss of resistance technique with an 18 gauge Tuohy needle at the L₃-L₄ level utilizing the lateral approach due to severe kyphoscoliosis (See Figure 1 & 2). A teflon catheter was introduced through the needle approximately 4 cm. cephalad in the epidural space. After aspiration of the catheter and injection of a test dose of 3% Chloroprocaine, a sufficient amount was instilled in divided doses to provide an anesthetic level to the T6 Dermatome. A total dose of 31 cc over a 50

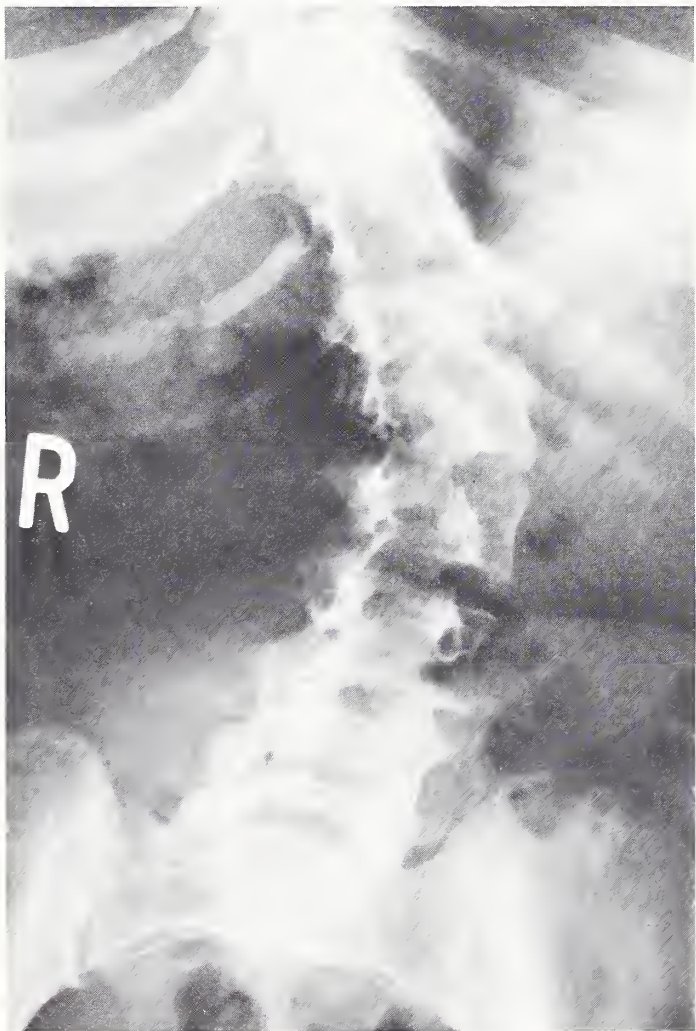


FIGURE 1

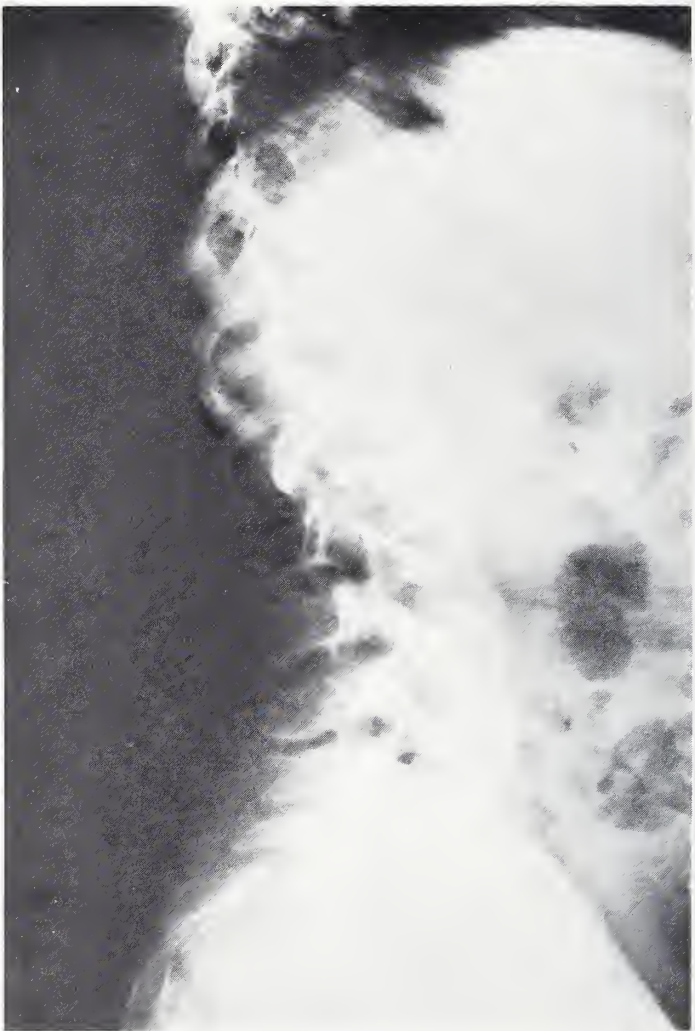


FIGURE 2

OSTEOGENESIS IMPERFECTA

minute time period was used. Oxygen was administered via face mask during the surgical procedure at a 5 liter per minute flow.

A normal appearing 2,744 gram male infant was delivered without difficulty. Apgar scores were 9 at one minute and 9 at five minutes. The remainder of the surgical procedure was without incident. Before leaving the operating room the epidural catheter was removed, inspected for intactness and an antibiotic dressing was applied. The patient recovered uneventfully and was discharged on the sixth postoperative day.

DISCUSSION

Obstetrical management of choice of these patients is considered to be Cesarean section.¹ This method avoids several problems encountered in O.I. Among these are, cephalopelvic disproportion secondary to a malformed pelvis caused by repeated fractures; the desire to avoid any undue trauma to the diseased fetus and lastly to prevent any further fractures from occurring to the parturient during a vaginal delivery.

The anesthetic management of a patient with O.I. is a multi-faceted problem.⁵⁻⁷ In addition to the usual thoughts concerning a Cesarean section, it is necessary to be cognizant of the bony and metabolic problems inherent to this disease. Conduction anesthesia is considered to be the method of choice.¹ The use of a regional technique in the operative delivery of these patients is desirable from several standpoints. Hyperthermia in the parturient and/or fetus is highly improbable.³ Endotracheal intubation is not necessary, thus preventing fracture of the mandible, broken teeth, or even damaged tracheal structures. Other benefits are found in the surgeon being able to make an unhurried operative delivery thereby greatly lessening potential injury to the affected fetus.⁶ By avoiding general anesthesia the detection and treatment of other altered metabolic states such as thyroid crises or diabetes mellitus is facilitated.⁷ The

performance of subarachnoid or peridural anesthesia can be a very real challenge in these patients because of the deformities usually present resulting in marked distortion of the normal anatomical landmarks. Many times, as illustrated in our case, the usual midline route is impossible necessitating the use of alternate approaches. The choice of local anesthetic agents is also very important in that the ester type drugs are preferable to the amide type which have been associated with cases of hyperthermia.⁸ A continuous technique is highly desirable to insure adequate anesthesia for the duration of the operative procedure. In conclusion O.I. occurring in the parturient and/or fetus demands careful consideration of all the various bony and metabolic abnormalities which can occur in the syndrome. □

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SPONTANEOUS RUPTURE OF THE LIVER IN PREGNANCY

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Spontaneous subcapsular hematoma and rupture of the liver is a rare complication of pregnancy often carrying a fatal prognosis for both the mother and the fetus. Knowledge of this entity and prompt recognition of the signs and symptoms should increase both maternal and fetal salvage. The first case was described in 1844.¹ Owen and Kandalaft reviewed the literature in 1973 and described the fifty-third case from which there were only sixteen maternal survivors.² Ten additional cases have recently been described with three of these surviving.^{3, 4, 5} We encountered two pregnant females with this problem, both of whom survived.

CASE REPORTS

Case I: A 31 year old, gravida II, para I, EDC January 21, 1975, developed upper right quadrant abdominal pain radiating to the back on December 16, 1975. Initial examination revealed blood pressure of 150/100. There was tenderness beneath the right costal margin with minimal right costovertebral angle tenderness. The fetal heart tones were good, and there was no uterine irritability. The diagnosis of cholecystitis was made, and prompt relief was obtained with oral analgesics.

On January 5, 1975, she was hospitalized with severe epigastric pain which radiated to the left shoulder of eight hours duration. Lack of fetal movement was noted several hours after the onset of the pain. The blood pressure was 140/96, and the fetal heart tones were absent. Labor was subsequently induced, and a stillborn infant

delivered. Following delivery, the hemoglobin fell to 7.4 grams per cent, and the patient continued to complain of left upper quadrant and left shoulder pain. Physical examination at that time revealed a tender mass in the left upper quadrant. Abdominal and chest X-rays showed an elevated hemi-diaphragm and a mass in the left upper quadrant (Fig. 1). Liver scan demonstrated decreased isotope activity over the entire left lobe of the liver compatible with subcapsular

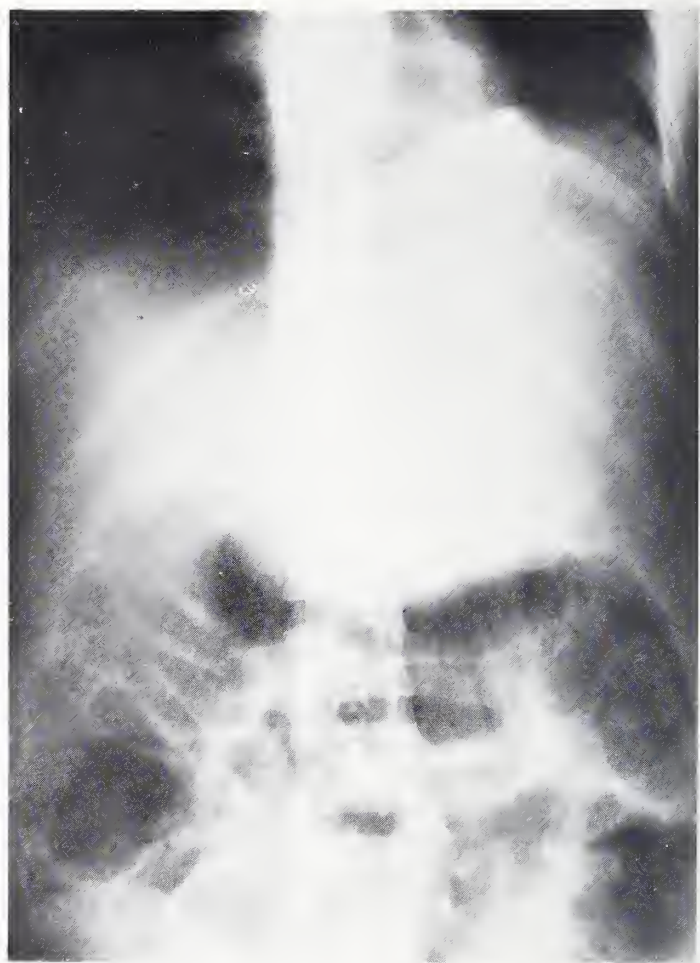


FIGURE 1

X-ray demonstrating elevated left hemi-diaphragm with large mass in the left upper quadrant displacing the transverse colon.

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RUPTURE OF THE LIVER IN PREGNANCY

mass (Fig. 2). Pre-operative blood transfusions were given and exploratory laparotomy was performed. A large subcapsular hematoma involving the entire left lobe of the liver was encountered. There was approximately 700 cc. of free non-clotting blood within the peritoneal cavity. The left lobe of the liver was released from its diaphragmatic attachments in preparation for resection. The hematoma was then evacuated. A raw oozing liver surface was encountered without gross rents or lacerations. The capsule was excised, and bleeding points were electrocoagulated. Surgicel gauze (oxidized regenerated cellulose) was placed over the raw liver surface, and the subhepatic and subphrenic spaces were drained. The post-operative course was uneventful.



FIGURE 2

Liver Scan demonstrating large subcapsular hematoma over the left lobe.

Case II: L. B., a 27 year old, gravida III, para II, EDC October 10, 1975, developed severe sharp epigastric and right upper quadrant pain radiating to the tip of the right shoulder on September 1, 1975. Her blood pressure was 170/110 and the pulse 98. Physical examination revealed a uterus of thirty-six weeks size. There was marked right upper quadrant tenderness and guarding. The fetal heart tones were active. The deep tendon reflexes were 3+. The patient's hematocrit was 32, and the urinalysis contained

4+ albumin. X-rays of the abdomen revealed twin fetuses. She was placed at bedrest, and treatment with magnesium sulfate was instituted. The blood pressure dropped to ranges of 130/80, but the pulse increased to 120. The urinary output fell, and eight hours after admission, the fetal heart tones were noted to become weak and then absent. The blood pressure continued to fall, and the pulse became rapid and thready. Cesarean section was promptly carried out. Stillborn twins were delivered through a lower midline abdominal incision. Free blood was noted in the abdominal cavity, and the incision was extended into the upper abdomen. A large actively bleeding right subcapsular hematoma of the liver was encountered. The hematoma was evacuated and bleeding points were electrocoagulated. Surgicel gauze was placed over the raw liver surface, and the abdomen was closed after the subdiaphragmatic and subhepatic spaces were drained. Approximately 3000 cc. of blood was lost during this procedure. Post-operatively, the patient continued to show signs of bleeding with non-clotting blood oozing from the drain sites. She was subsequently returned to the operating room and re-explored. The subcapsular hematoma had extended itself to the left lobe of the liver. The clot was evacuated, and the liver surface treated in a similar fashion. During the operation and following, she had a bleeding diathesis which was manifested by prolonged prothrombin and partial thromboplastin time. The platelet count was diminished, and the fibrinogen levels were low. She was treated with fresh blood, platelet transfusions and fresh frozen plasma along with multiple transfusions of packed red blood cells. The bleeding eventually subsided. The remainder of the hospital course was complicated with high output renal failure and pneumonia, both of which gradually cleared. She was discharged on the twenty-fourth post-operative day. She has recently had a laparoscopic tubal ligation, and the liver function studies are normal.

DISCUSSION

The clinical history and findings in reported cases of spontaneous subcapsular hematoma of the liver in pregnancy are strikingly similar. The patients are usually multiparous and of relatively advanced age for pregnancy. Almost all of the cases have been associated with toxemia of preg-

RUPTURE OF THE LIVER IN PREGNANCY

nancy. The patient is usually in the third trimester of pregnancy when near term, she develops sudden and catastrophic abdominal pain. A history of trauma is absent. Hypotension and tachycardia without signs of external blood loss are the usual findings, and fetal distress is invariably encountered.

The etiology of this entity is obscure. Inapparent trauma,⁶ violent contraction of the diaphragm and abdominal muscles during labor and vomiting have been suggested.⁷ Rademaker believed that hypertension and sudden muscular action was responsible for ruptured hepatic blood vessels rendered diseased by toxemia.⁸

The majority of reported cases have been associated with toxemia of pregnancy. One of the outstanding pathological features of toxemia is capillary fibrin thrombi. Disseminated intravascular coagulation occurs in a number of disease states, one of which is toxemia of pregnancy. Normally fibrinolysis and reticuloendothelial phagocytosis of fibrin are the two protective mechanisms for fibrin removal. It has been suggested that the reticuloendothelium system, sensitized by previous pregnancies is unable to clear the fibrin thrombi, and the stage is set for infarct necrosis and hemorrhage.⁹

Treatment can be successful if the problem is promptly recognized and immediate laparotomy performed. In the two reported cases, the capsule of the liver had been elevated by the hematoma, and a raw bleeding liver surface was encountered. The hematoma was simply evacuated, and active bleeding sites were electrocoagulated. Non-explosive anesthesia is mandatory. The raw liver surface was covered with Surgicel gauze, and the bleeding stopped. The subhepatic and subdiaphragmatic spaces were drained.

In the first case, the diagnosis was made pre-operatively, and the bleeding had essentially stopped. There is one case reported in which the diagnosis was made by angiography, and the patient was treated non-operatively with success.¹⁰

The patient in the first case report has since successfully delivered by cesarean section a viable but premature infant. To our knowledge, this is the first case report of a successful pregnancy in a survivor of this condition. There was no demonstrable liver function abnormality during this subsequent pregnancy.

SUMMARY

Two cases of spontaneous subcapsular hematoma of the liver during pregnancy, both of whom survived, are presented. This entity should be entertained in multiparous toxemic females in the third trimester of pregnancy who develop sudden abdominal pain and become hypotensive without external signs of blood loss. Immediate laparotomy provides the best hope for survival for both the fetus and the mother. The raw bleeding liver surface is well controlled with Surgicel gauze and electrocautery. □

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PATIENT PACKAGE INSERTS: A CONCEPT WHOSE TIME HAS COME?

The consumer's right to know is an irreversible and desirable trend of the Seventies. It extends, and properly, to a patient's right to know more about his or her prescription medications. One way, gaining favor, is through patient package inserts. Wisely-prepared and properly distributed when medically indicated, they could markedly improve patient knowledge and drug therapy—laudable goals by anyone's standards.

The PMA endorses these goals and will work with government, the health professions and consumers to achieve them.

The Advantages

The concept holds promise of benefits: better patient understanding of the product prescribed, better adherence to the treatment plan, and more awareness of possible side reactions.

Every doctor has had patients who fail to finish antibiotic regimens because they feel better. Some patients assume that if one tranquilizer or analgesic is good, two may be twice as good. Still others fail to report dizziness while on antihypertensive therapy—and so on.

Problems like these might arise less often if the patient received written information in addition to verbal instructions. Some studies suggest that patients are more receptive to such materials, and they more often understand the verbal instructions and follow them, when inserts are used.

The Disadvantages

There are also some potential problems. Obviously, the inserts must be clearly phrased, without extraneous or complex detail. How much information

is enough? How can it be kept current? Should all patients receive the same information? Should inserts be included with all drugs? Should only potential problems be listed or are patients better off with a "fair balance" presentation that describes usefulness as well as drawbacks?

These and similar questions require answers, since model inserts have yet to be properly developed and tested. Despite the need for these studies, the FDA is proceeding prematurely with inserts on selected products. We think the Congress is the only place where the matter can be given the proper legal status and direction, particularly since it represents a conceptual change in the legal, medical and social framework of the nation's prescription drug information system.

The Solution

The PMA believes that carefully-devised pilot studies of various kinds of inserts are needed. They should be developed and implemented with full participation by doctors, pharmacists, consumers, communications experts and the drug industry. Such studies will provide reliable pathways to follow, so that inserts will be useful aids to medical practice.

And particularly we think that you should be closely involved in this debate and in these studies and decisions. Otherwise, people with less experience and qualifications may control the purposes, content and use of a tool with considerable promise for improved patient care. It could make a difference in your practice tomorrow, and more importantly, in the health of your patients.



THE PHARMACEUTICAL MANUFACTURERS ASSOCIATION
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THE HAMPTON PROJECT:*

INITIAL CENSUS DATA FOR A COMMUNITY-BASED HEALTH COMMUNICATION SYSTEM

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BACKGROUND

With the assistance of a Federal grant** and guidance from the Medical University of South Carolina, a three-year project was designed to improve the quality of health care delivery in Hampton County, in one of the underserved regions of the state.¹ A local, nonprofit Hampton County Health Foundation was organized, composed of a majority of consumers and a minority of health care providers to provide community-based direction and responsibility for the project. The primary objectives of the project are to: (a) establish a private-public network of computerized health records² for an identified total county population, and thereby demonstrate its feasibility; (b) identify and measure patterns of utilization of health services among the various segments of the population; (c) have some impact on improving the efficiency and/or effectiveness of health services; and (d) demonstrate the self-sufficiency and cost-benefits of continuing the computer network after completion of the three-year project. The structure of the network is illustrated in Figure 1. Terminals located in the offices of each of the major health care providers in the county are linked by telephone lines to a computer in the centrally located county hospital. The computer is owned by the Foundation

and is dedicated to carrying out the functions of the project.

PURPOSE OF THE SURVEY

In order to establish baseline features of the population of Hampton County, a census was essential. Two approaches were utilized: (1) an initial door-to-door household survey (which also acquainted the respondents with the Foundation and the computer project), and (2) a census for those missed in the household survey which is obtained as part of the on-going care being provided in the office, clinic, pharmacy, or hospital setting. The questionnaire for each adult is shown in Figures 2 and 3; a similar questionnaire was used for each child. This report is limited to the data collected in the initial household survey conducted in the fall of 1976. In due time, the results of the county-wide survey will enable us to compare a wide range of participants who use the various kinds of health services at rates which are low, medium, and high in relation to the population averages, in relation to available services, and in relation to the best estimate of their health care needs.

COMPLETENESS OF THE INITIAL CENSUS

The Foundation went to the community for help in organizing the initial census. Twenty-four neighborhood teams under group captains canvassed each of the enumeration districts of the U. S. Census. As expected, the interviewers were well received by their friends and neighbors. Over an eight week period 260 volun-

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** DHEW/PHS/HSA/BCHS/Rural Health Initiative Program Grant #04-8-001107-09-0.

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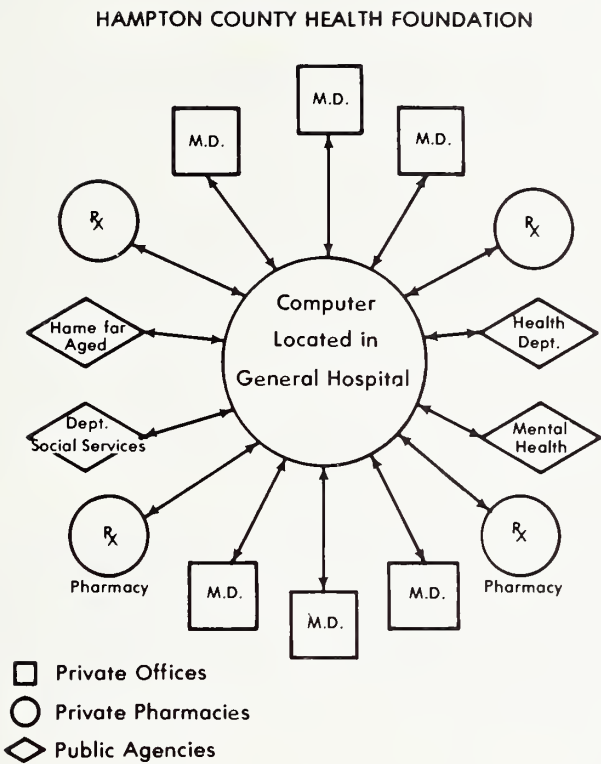


FIGURE 1: Diagram of health communications network.

Who is the head of this household? (Who runs the home? or who is responsible in case of an emergency?)

Last name First name Middle name or nickname

HAMPTON COUNTY HEALTH FOUNDATION
Household Survey 1976
ADULT FORM

1. Name Last name First name Middle name or nickname

2. Birthdate 3. Sex 4. Race

5. Relation to Head of Household?
Spouse Brother Sister Grandparent
Soo Father Mother Grandchild
Daughter Stepfather Stepmother Boarder
Adopted Uncle Aunt Other (explain)
Foster Niece Nephew
In-law Cousin

6. Most of the time, do you feel healthy? or
Most of the time, do you feel sick?
healthy sick don't know, can't say

How many things bother you? 0 1 2 3 4 or more

7. IN THIS COUNTY do you use any of the following health services? yes no
(circle one)

M.D.	DRUGSTORE	AGENCY
7a. If yes, 7b. When was check last time?	7a. If yes, 7b. When was check last time?	7a. If yes, 7b. When was check last time?
Peebles	Estill Pharmacy	Hospital
Causey	Stanley's Drugs	Emergency
Pulaski	Vincent's Drugs	Room
Rhodes	Revco	Health
Young	(Other)	Department
DeLoach		Mental Health
Mayne		Home for the Aged
Young		Dept of Social
(Other)		Services
No Doctor (If "no doctor", record comments in respondent's own words):		(Other) (Explain)

7c. Do you use them (any of the above) now?
If yes, circle name of service.

FIGURE 2: Census Form (Questions 1-7c).

8. OUTSIDE THIS COUNTY, do you use any of the following services?

yes no
(circle one)

8a. If yes,	8b. Name	8c. When was last time?	8d. Were you referred or went on your own? referred on own
M.D.			
M.D.			
M.D.			
M.D.			
Hospital			
Hospital			
Hospital			
Emergency Room			
Emergency Room			
Clinic			
Health			
Department			
Home for the Aged			
Department of			
Social Services			
Other Health			
Agency			

8e. Do you use them (any of the above) now?
If yes, circle name of service.

FIGURE 3: Census Form (Question 8).

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teers interviewed 13,054 persons in 3,153 households. Only three residents refused to participate in this voluntary survey.

In the 1970 Federal Census, 15,878 persons were counted representing a population decrease of 8.9% since 1960. The current 1976 estimate of the county population is 17,368, providing a figure of 75.2% participation in the initial census.

The results of the census are shown in Table 1 for 12,217 respondents whose questionnaires were complete for race, sex and birthdate. New persons are being added on a current basis; at the time of this report (5/3/77) there are 13,813 registrants in the Hampton County Health Foundation census. Any gaps in household census information (such as birthdate) are also being completed.

TABLE 1 - DISTRIBUTION OF RESPONDENTS TO INITIAL HOUSEHOLD SURVEY BY AGE, RACE, SEX, AS OF 2/24/77

AGE	WM	WF	BM	BF	TOTALS
0-9	462	401	716	800	2379
10-19	486	487	762	844	2579
20-29	398	415	506	604	1923
30-39	413	401	261	290	1365
40-49	317	345	199	264	1125
50-59	331	355	222	297	1205
60-69	252	304	205	242	1003
70-79	122	176	81	127	506
80-89	26	41	17	22	106
90-99	2	6	5	10	23
100-109	0	1	0	1	2
110-119	0	0	0	1	1
TOTALS	2809	2932	2974	3502	12,217*

* Of 13,054 respondents registered at this time, 211 questionnaires were incomplete on race and/or sex, and 537 questionnaires were incomplete on birthdate (see text).

REPRESENTATIVENESS OF THE CENSUS

How representative are the 12,217 respondents in Table 1 of the population described in the 1970 census of Hampton County? In a separate analysis by age-composition, sex-ratio, and racial composition, the 1976 Foundation Census and the 1970 Federal Census matched closely (within two to four percentage points). Also in agreement with the Federal Census is evidence that there are slightly more persons in Hampton County under age 20 and over age 60 than in the state population reported in 1970. It will be interesting to compare the results of the 1980 census with the ongoing computerized census of the Foundation.

The four major race-sex groups (white male, white female, black male and black female) are almost equally represented in Table 1, with a slight preponderance of black females. The

reasons for somewhat higher numbers of black females than black males, particularly at the youngest ages, are not clear.

CONFIDENTIALITY OF THE SURVEY

Responses to the interview are being analyzed primarily for statistical patterns, not for individual information. Respondents are being asked as they visit the office of any health provider in the Foundation to agree to the sharing of certain essential elements of their medical records, or of the records of their minors.* Among the providers in the Foundation, strict guidelines and protocols have been developed to insure the confidentiality of these records.

The responsibility for this trust rests not only upon the providers in the traditional doctor-patient relationship, but also rests upon the duly elected representatives of the community who serve as the local Board of Trustees of the Foundation.^{3, 4}

HEALTH STATUS

After essential information on identification and composition of the household was obtained, a two-part question was directed at health status (Figure 2, Question 6). This general question on self-perception of health status produced rather interesting results (Table 2). Note that 77.4% (9,460 out of 12,217 persons) reported themselves as healthy. Only 16.1% of the respondents reported themselves as sick "most of the time"; 4.3% of the respondents did not know or could not say; and 2.2% of the respondents did not answer the question. When the results are examined by the four major sex-race groups, it is noteworthy that the black females reported significantly higher rates of sickness (23.3%), followed by black males (17.9%), almost twice the rates of the white respondents (10 to 11%). In the category "don't know," the results suggest that the black respondents were somewhat less decided than the white respondents (5.2 and 6.6% compared to 2.1 and 1.8%). The overall non-response rate for this question was very low (2.2%).

HEALTH STATUS BY HOUSEHOLD STRUCTURE

In Table 3, we examined the rates of "sick"

* A copy of the patient-provider agreement of the Foundation is available upon written request.

HAMPTON PROJECT

response by sex, race, and household status, and graphed the relationships in Figure 4. The heads of household represent 3,153 adults in the community; the non-heads of household represent 9,064 children, spouses and dependents.

TABLE 2 - SELF REPORT ON HEALTH STATUS, BY SEX AND RACE.

CATEGORIES OF RESPONSE*		WM	WF	BM	BF	TOTAL
Healthy	No.	2390	2459	2223	2388	9460
	%	85.1	83.9	74.7	68.2	77.4
Sick	No.	290	326	531	815	1962
	%	10.3	11.1	17.9	23.3	16.1
Don't Know	No.	59	83	154	233	529
	%	2.1	2.8	5.2	6.6	4.3
Did Not Answer	No.	70	64	66	66	266
	%	2.5	2.2	2.2	1.9	2.2
Total	No.	2809	2932	2974	3502	12,217
	%	100.0	100.0	100.0	100.0	100.0

*Question: "Most of the time, do you (does this child) feel healthy, or most of the time, do you (does this child) feel sick?" Check () healthy, () sick, () don't know or can't say.

The female rates are higher than the male rates (17.62% compared to 14.20%). The head of household rates are considerably higher than the non-head of household rates: 20.27% compared to 10.16% for males and 37.44% compared to 14.76% for females. The black rates are higher than the white rates, 20.78% versus 10.73%.

Thus in Table 3 at least three important variables affecting health status are evident: sex, race, and household status. In Figure 4, the highest rates of sickness are reported by black females who are heads of households (48.7%) and the lowest rates of sickness are reported by white males who are non-heads of households (5.4%). It is impressive that within any race-sex group, the ratio between head of household (H.H.) and non-head of household (non H.H.) is consistently 2.5 to 1 or greater (48.7/19.4; 28.6/13.3; 24.0/9.2; and 15.1/5.4). The excess of illness among heads of households raises a number of questions, foremost of which is, how important is the difference in age between H.H. and non H.H.? The fourth factor to be considered in relation to self-reported illness is age.

AGE — SPECIFIC SICK RATES

When the self-reported illness rates are listed by ten-year age groups in Table 4, there is a consistent increase from 7.06% in the youngest group to 76.92% in the oldest group. The

TABLE 3 - SELF REPORT ON HEALTH STATUS BY SEX, RACE, AND HOUSEHOLD STATUS*

	MALE		MALE TOTAL	SEX TOTALS
	WHITE	BLACK		
Sick H.H./H.H.	215/1425 = 15.09	253/884 = 28.62	468/2309 = 20.27	
	FEMALE		FEMALE TOTAL	
	WHITE	BLACK		
Sick H.H./H.H.	92/384 = 23.96	224/460 = 48.70	316/844 = 37.44	MALE 821/5783 = 14.20
				FEMALE 1141/6474 = 17.62
	MALE		MALE TOTAL	
	WHITE	BLACK		
Sick non H.H./non H.H.	75/1384 = 5.42	278/2090 = 13.30	353/3474 = 10.16	
	FEMALE		FEMALE TOTAL	
	WHITE	BLACK		
Sick non H.H./non H.H.	234/2548 = 9.18	591/3042 = 19.43	825/5590 = 14.76	
RACE TOTALS				GRAND TOTAL
	WHITE 616/5741 = 10.73	BLACK 1346/6476 = 20.78		

* Household status refers to self-reported head of household (H.H.) compared to non head of household (non H.H.).

HAMPTON PROJECT

“healthiest” self-report was for white females aged 20-29 (2.16%) and the least healthy report was for five black males aged 90 years or more (100.0%). As a group, the sharpest rise in illness rates (below age 90) occurs at age 50 (from 17.33% to 30.37%); this rise differs among the race-sex groups being highest for black males (19.83%), next highest for black females (14.40%) and white males (13.91%), and least of all for white females (5.48%). In the succeeding decade, the white female illness rate rises, but more slowly than the other three groups.

In Figure 5, the slopes of the four curves can be compared, with the blacks exceeding the whites at each decade, with the sharp rise at age 50 for all four groups, and with the sex differences apparent within each racial group.

In summarizing the results of Table 4, we see (in the bottom row) that while 16.06% of all persons in the county reported illness, these rates range from 10.32% for white males to 23.27% for black females.

TABLE 4 - SELF-REPORTED "SICK" RATES BY SEX, RACE, AND AGE.

AGE	WM	WF	BM	BF	n/N	PERCENT
0-9	3.68	3.49	9.36	8.75	169/2379	7.06
10-19	2.26	2.64	9.19	12.77	201/2579	7.79
20-29	3.27	2.16	8.30	14.73	154/1923	8.01
30-39	3.39	5.48	16.09	22.06	142/1365	10.40
40-49	6.94	11.98	21.61	33.71	195/1125	17.33
50-59	20.85	17.46	41.44	48.11	336/1205	30.37
60-69	34.52	27.63	52.20	58.67	419/1003	41.77
70-79	37.70	36.36	60.49	69.40	244/506	48.22
80-89	38.46	31.70	82.35	72.72	53/106	50.00
90 +	50.00	42.85	100.00	91.66	20/26	76.92
TOTAL	10.32	11.11	17.85	23.27	1962/12217	16.06

VALIDITY OF SELF-REPORTED HEALTH STATUS

The health status data from 12,217 respondents in this county represent the perception and report to a lay interviewer (volunteer county resident) to a simply stated general question. The question was deliberately simple in the interest of likelihood of understanding and response. More complex questions were not considered at this time, since only a baseline was needed for later, more refined study.

In a recent epidemiologic report Andrews, Schovell and Tennant utilized three questionnaires relating to physical health, psychological health, and social morbidity in a household survey in a suburb of New South Wales, Australia.⁵

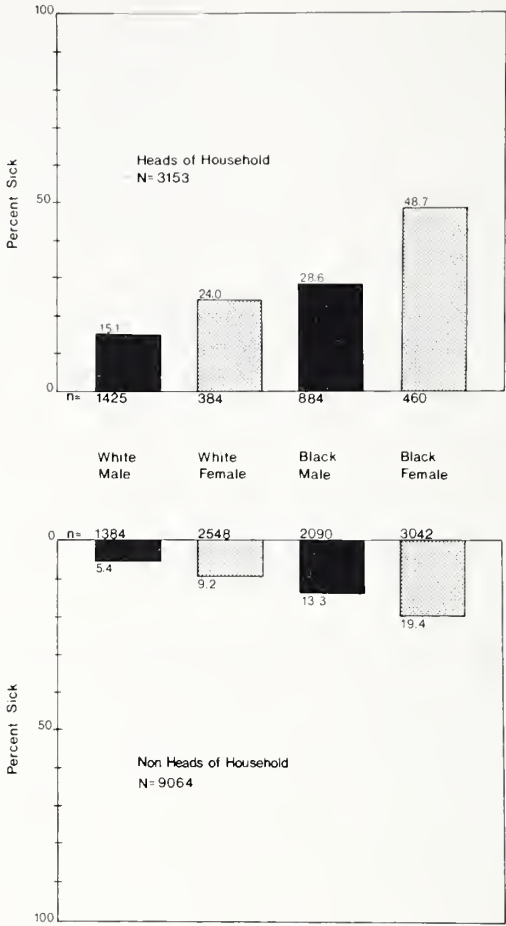


FIGURE 4: Self-reported “sick” rates by sex, race and household status.

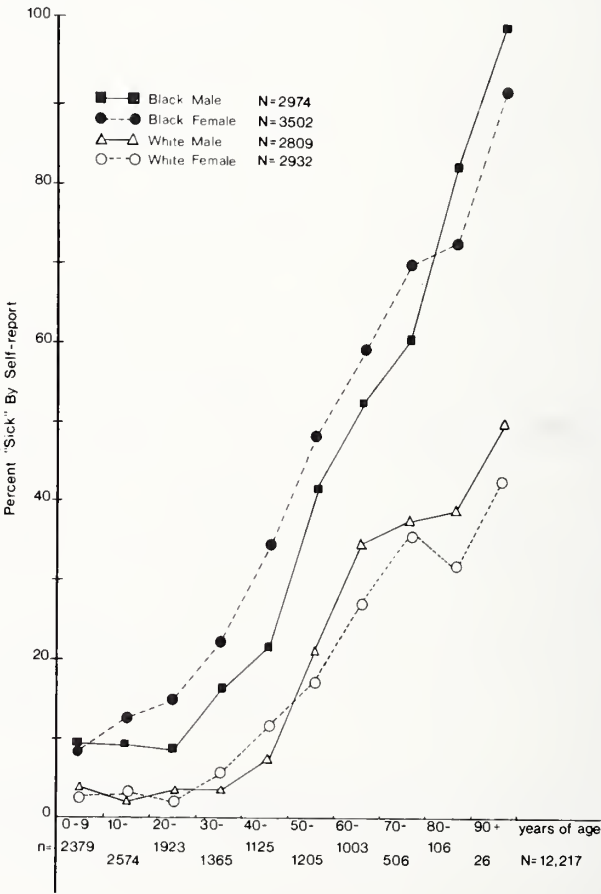


FIGURE 5: Self-reported “sick” rates by sex, race and age.

HAMPTON PROJECT

Working with a probability sample of 863 adults (aged 20 to 69), they used a physical health questionnaire developed by Belloc, *et al.*,⁶ which places an individual on a seven-point scale of health ranging from "symptom free and possessing high energy" to "disabled by chronic illness." The Australian rate of self-reported illness for adults was 16.1% which agrees with the Hampton County rate for all ages (16.06%).

In an attempt to validate self-reported illness, the Australian investigators had a number of persons attending their family physicians fill out the questionnaires and their results were compared with the physician's assessment. "The two sets of scores correlated 0.84, the physicians regarding their patients as slightly less ill than did the patients who were seeking consultation." The authors were impressed by their validation study but still expressed caution that "appreciable pathology may exist in the absence of reported symptoms." It is worth noting another finding in the Australian study: 31% of the adults interviewed "reported themselves as suffering from a specified condition that produced no disability or limitation on activity." This would seem to correspond with a large group of patients in ambulatory care centers who are termed "the worried well" by many physicians.

SELF-REPORTED USE OF HEALTH SERVICES

The sources of health services (both within and outside the county) were mentioned by respon-

dents in answer to Questions 7 and 8 (Figures 2 and 3). The results are presented as user rates for the four race-sex groups in Table 5. Note that 90.6% (11,070/12,217) of the respondents identified one or more private physicians as health care providers in the county. In addition 7,406 persons or 60.6% identified a pharmacist as a source of services in the county. Of the respondents 9.5% identified the health department and only a few mentioned the mental health agency (0.2%). Note that the row percentages exceed 100% because each person could report as many providers as appropriate; the categories are not mutually exclusive. Of the 12,217 respondents, 28.4% (3,468) mentioned use of health providers outside of the county, including a variety of agencies such as the VA hospitals, university specialty clinics, and a few military installations.

Comparisons between the self-reported use of health services in Hampton County by whites and blacks indicate that almost three times as many whites use services outside of the county as do the blacks (44% versus 17%). Within the county the usage rates of M.D.'s are similar, ranging from 89.5% for white males to 92.2% for black females, with very little variation around the mean of 90.6%. It is evident that, regardless of race or sex, the average resident of the county identifies with one of the seven local physician-providers. The user rates for the pharmacies are slightly higher for the whites than for the blacks, and the user rates for the health department are somewhat higher for the black females (11.9%)

TABLE 5 - SELF-REPORTED RATES OF UTILIZATION BY SEX AND RACE*

NO.	RESPONDENTS		WITHIN COUNTY				OUTSIDE OF COUNTY
			M.D.'s	PHARMACIES	HEALTH DEPT.	MENTAL HEALTH	
2809	WM	No.	2514	1778	201	3	1091
		%	89.5	63.3	7.2	0.1	43.4
2932	WF	No.	2633	2004	270	4	1322
		%	89.8	68.3	9.2	0.1	45.1
2974	BM	No.	2695	1561	270	8	495
		%	90.6	52.5	9.2	0.3	16.6
3562	BF	No.	3228	2063	418	10	580
		%	92.2	58.9	11.9	0.2	16.6
12,217	TOTAL	No.	11,070	7406	1159	25	3468
		%	90.6	60.6	9.5	0.2	28.4

*Questions 7 and 8: In this county (outside this county) do you use any of the following health services? (An extensive check list follows.)

HAMPTON PROJECT

and lowest for the white males (7.2%).

In Table 6, closer attention is given to the group of 1,962 who identified themselves as "sick." Here we see similar results to Table 5 in that the majority of the respondents identified one of the M.D.'s in the county as a source of medical care (88.9%). Again, this varies little by race or sex. The pharmacies are next in frequency of self-report. The Health Department is listed in a slightly smaller proportion (6.1%). Out-of-county services are distinctly higher than average for sick white females (58.3%); and slightly higher for sick black males than for sick black females. The data in Tables 5 and 6 are summarized in Figure 6, which shows a remarkable similarity in the user rates of the respondents both sick and well, within and outside of the county. It is evident Hampton County residents, for a variety of traditional and geographic reasons, seek most of their primary health services (in-patient and out-patient) within the county. On-going study of health services in the county for the next two years will identify specific patterns of referral, within and out-of the county. Out-of-county residents who come into the county for health services will also be identified and counted as their patient encounters are recorded in the medical record system. Four of the authors (MLB, JDJ, SHS and HBC) have described the uses of such encounter forms to record a variety of essential information directly into an online computer terminal.^{7, 8, 9} The needs of the Hampton County Health Foundation to

monitor services will be facilitated through the use of similar adapted encounter forms.

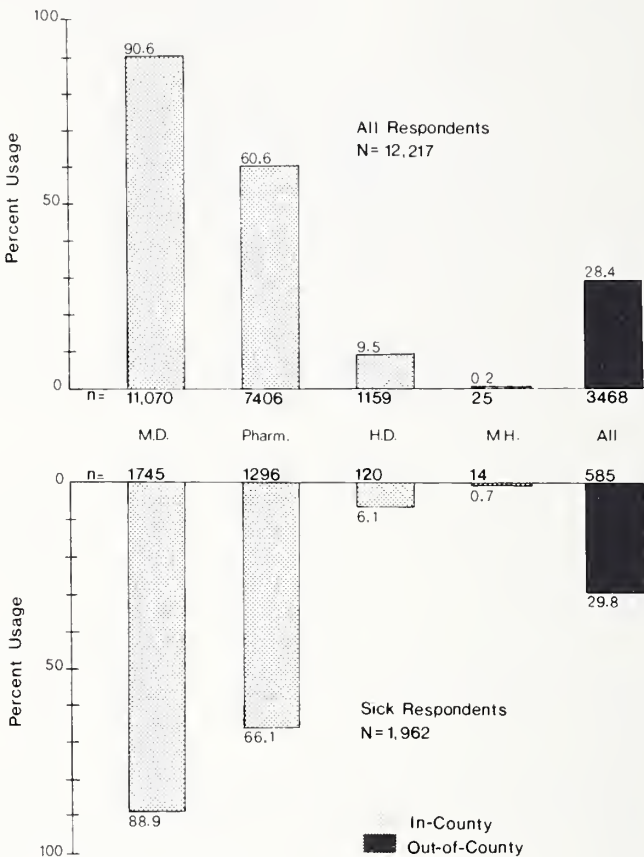


FIGURE 6: Self-reported rates of utilization of health services.

TABLE 6 - SELF-REPORTED RATES OF UTILIZATION OF HEALTH SERVICES BY SEX AND RACE FOR SELF-RATED "SICK" RESPONDENTS

NO.	"SICK" RESPONDENTS		WITHIN COUNTY				OUTSIDE OF COUNTY
			M.D.'s	PHARMACIES	HEALTH DEPT.	MENTAL HEALTH	
290	WM	No.	261	205	16	0	102
		%	90.1	65.3	5.5	0.0	35.2
326	WF	No.	285	224	18	2	190
		%	87.3	68.6	5.7	0.6	58.3
531	BM	No.	462	319	33	6	131
		%	87.1	60.0	6.1	1.2	24.7
815	BF	No.	737	548	53	6	162
		%	90.4	67.2	6.5	0.8	19.9
1962	TOTAL	No.	1745	1296	120	14	585
		%	88.9	66.1	6.1	0.7	29.8

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IDENTIFYING SICK AND NEEDY PERSONS

Because of community interest in identifying any sick or needy persons in the county who were reached by the Household Survey, special efforts were made to review those 10% of persons who perceived themselves as "sick," and who did not identify or list an M.D. in the county. Data from over 200 persons were searched from the computerized list of health providers mentioned in the interviews. The results of this search yielded 184 "sick" persons who did, in fact, list a doctor practicing outside of the county (including nearby Allendale, Walterboro, Yemassee, etc). The remaining list of 16 respondents out of 1,962 sick persons (less than 1%) did not identify a doctor in the county, near the county, or the health department as a source of medical attention. Each of these 16 people was then contacted personally and reinterviewed to verify a.) their self-report of illness and b.) their need for medical attention. This is an example of how the Household Census has provided the first stage of an information system to help the private sector and the public sector work together and coordinate their efforts.

INTERPRETATIONS OF THESE DATA

Limitations of these data from the initial household census are evident, but a preliminary report of the major findings at this time seems relevant. A baseline for further reports is presented with the likelihood of an ever-increasing data bank (numerators and denominators) as the on-going census and tabulation of patient-provider contacts accumulate in the computer of the foundation.

One of the limitations of this survey was the lack of inclusion of other health providers. In the future, the network can be enlarged to include dental and relevant social, and educational services.

The advantages of ongoing data collection at multiple sites in the community have been cited. Thus "missing" persons, "gaps" in the census data, errors in birthdate, race, or sex, can and will be recognized and corrected.

Self-reports of health status or of user rates need to be and will be validated by other kinds of data retrieved by the system. Validation can be done by linking, for any individual, a complete record of in-patient and out-patient services.

Overlap and duplication of services will be revealed.

Last, but not least, how can each person's individuality be preserved as he or she navigates through the various channels of the complicated health care delivery system? Computer-linkage of accurate, essential, and legible health facts in a defined community can and should provide this long overdue but necessary advantage for both provider and consumer.

CONCLUSIONS

A collaborative effort involving a rural county and its leadership, a nearby medical university, and a federal program of rural health initiative has resulted in a health communications network linking the major health providers for over 17,000 people.

The first stage of a three-year effort to improve the quality of health care in one of the underserved regions of the State was completed: a door-to-door Household Health Survey in which 260 volunteers interviewed 13,065 of their neighbors. The remaining residents will be interviewed as part of on-going health services.

The results of this survey indicate a majority of residents reporting themselves healthy (77.4%) which is in agreement with a recent Australian suburban survey. With increasing age, self-reported illness increases rapidly, especially after age 50. The four major race-sex groups in the county (containing approximately equal numbers) show interesting similarities and differences. Family structure is an important variable in illness rates (as indicated by the fact that the head of household status predisposes to higher illness rates).

There are high rates of usage of local physicians' services (90.6%) with an additional nine percent of Hampton County residents who identify with physicians in nearby communities. Usage of health services by the healthy majority of the population and the sick minority of the population did not differ in this baseline survey.

In later reports, more refined analysis will be applied to measure and discriminate the effects of factors such as age, sex, race, household status, family size, income, method of payment, distance from health services, education and self-perceptions of illness, as they relate to actual patterns of usage of health services.^{10, 11, 12, 13, 14}

The success of this initial household census is

HAMPTON PROJECT

evidence of goodwill and teamwork at the neighborhood level and of basic confidence in the community-based, nonprofit Hampton County Health Foundation. Whatever issues are involved in confidentiality of health records rest with the traditional doctor-patient contract and with the social responsibility and stewardship of the broadly representative trustees of the Foundation.

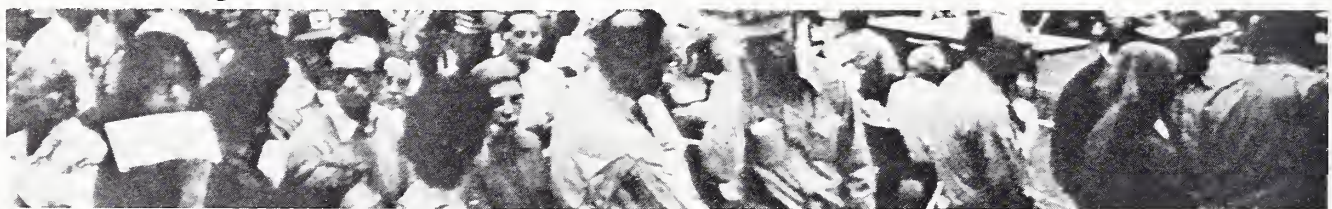
Insofar as the project succeeds in adapting computer technology to the health record system of this rural community, one would expect the average man, woman, and child to obtain better health services, (curative and preventative), without diminishing the humane and personal touch of the healing professions. □

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A SYNOPSIS OF LEFT VENTRICULAR PERFORMANCE*

GRADY HENDRIX, M.D.**

INTRODUCTION

The primary physician has suddenly become faced with an explosion of hemodynamic and cardiovascular physiologic data. The accessibility of patients anywhere in South Carolina to hemodynamic intensive and coronary care unit monitoring as well as to cardiac catheterization, coronary arteriography, and open heart surgery makes it essential for both primary and consultant physicians to understand the terminology and therapeutic implications of such data.

The most important considerations involve the left ventricle and its performance under normal and abnormal circumstances. The following is a synopsis of our approach to this understanding at the undergraduate level.

- I. Filling characteristics of the left ventricle: The filling pressure of the LV is dependent on the end systolic volume (normal = 24 cc/m2), the volume of diastolic inflow (normal = 75 cc /diastole), and the stiffness of the LV wall (compliance). The maximal filling pressure of the LV is measured at end diastole and normally is 0 to 12 mm Hg. Compliance is that property of LV muscle which enables it to be resilient and pliable and able to conform. Diseased LV muscle causes a loss of compliance which imposes a resistance to filling.

- II. Hemodynamics and ventricular volumes and dimensions: The systemic cardiac output (normal = 5L/min) is determined by the left ventricle. Normally each systole ejects 2/3 of the end diastolic volume (normal = 70 cc/M²) with each systole. This output is a function of the filling characteristics of the LV as well as the mechanical effects of the LV muscle. Left ventricular volumes and ejection fractions can be calculated angiographically. The LV end diastolic volume roughly correlates with the LV end diastolic pressure (normal LVED = 12 mm or less). Cardiac output determined by dye curves:

$$\text{Cardiac output} = \frac{60 \times I \text{ L/min}}{A \times M}$$

I = Amount of dye injected

M = Calibration factor

A = Area under curve

Cardiac output by the Fick Principle:

$$\text{Cardiac output} = \frac{\text{Oxygen consumption}}{(\text{Systemic artery oxygen content} - \text{Pulmonary artery oxygen content})^{10}}$$

Cardiac output by angiographic methods:

$$(\text{end diastolic volume} - \text{end systolic volume}) \times \text{heart rate}$$

$$\text{ejection fraction} = \frac{\text{end diastolic volume} - \text{end systolic volume}}{\text{end diastolic volume}}$$

* Prepared for MUSC School of Medicine Sophomore Course, "The Scientific Basis of Medicine."
** Associate Professor of Medicine, Division of Cardiology, Medical University of South Carolina, 80 Barre Street, Charleston, S. C. 29401

LEFT VENTRICULAR PERFORMANCE

III. Muscle mechanics: Contractions of the left ventricle require both a reduction in the diameter of the cylindrical portion and a shortening along the longitudinal axis of the chamber. Contractions of the circumferential muscle bundles act to reduce the diameter of the chamber and account for most of the power and volume of ejection since the volume decreases with the square of the radius in a cylinder. Shortening of the longitudinal axis is less effective as an ejection mechanism because the volume displacement is directly proportional to the change in length.

Isovolumic contraction is that mechanical contraction occurring before ejection begins and isotonic contraction is contraction occurring during ejection. Isovolumic relaxation occurs at the end of ejection. Preload is the fiber length during isovolumic contraction and this can be varied experimentally by varying the end diastolic volume and end diastolic pressure. Afterload is the tension across the myocardial fibers during isotonic contraction and can be altered experimentally by varying the aortic diastolic pressure. This is Starling's Law of the Heart: Within physiological limits a larger diastolic volume (preload) or a greater pressure load (afterload) results in a greater energy of contraction of the ventricle and a greater amount of chemical change with each contraction.

It is difficult to express the contractility of the myocardium in a quantitative clinical sense. V_{max} , the maximal velocity of contraction can be measured but is not practical clinically. Dp/dt , the peak first derivative of the LV pressure with respect to time, can be measured easily and is a fairly accurate index of the summation of LV contractility. The normal in the MUSC Cardiovascular Laboratory is 1400-2000 mm/sec. The overall cardiac performance can be assessed by measuring cardiac output, but this is not a measurement of contractility only as one may have reduced cardiac output in states such as valvular or pulmonary disease with normal muscle mechanics. Most clinical decisions regarding LV contractility are made on the basis of gross interpretations of angiography.

IV. Autonomic nervous system control of left ventricular performance:

- A. Parasympathetic: The only influence of these nerves on LV function is through its effect on heart rate; there are no known terminations in the LV. The heart rate is controlled by a balance of the slowing effect of the parasympathetic nerves (vagus) and the accelerating effects of the sympathetic nerves.
- B. Sympathetic: These nerves are distributed throughout the heart and act by the release of a chemical transmitter (norepinephrine) at the nerve endings resulting in increased contractility and heart rate. Sympathetic stimulation causes a rise in ventricular systolic pressure and an increased acceleration of ejection. It also causes an increase in heart rate with a decreased systolic ejection period. The net result is that an individual is able to increase his heart rate and through the accelerated ejection maintain his stroke volume with an overall net result of a greater cardiac output.

EX: $SV = \text{stroke volume in cc/beat}$
 $HR = \text{heart rate in BPM}$
 $CO = \text{cardiac output in L/min}$
 $SV \times HR = CO$
Resting: $75 \times 70 = 5.25 \text{ L/min}$
Sympathetic Stimulation: 75×130
 $= 11.25$
 L/min

V. Adaptation to stress: Complex mechanisms come into play to enable one's cardiovascular system to meet the challenge of stress. These revolve around:

- (1) Increased cardiac output
- (2) Redistribution of blood flow
- (3) Increased oxygen extraction
- (4) Oxygen debt

The principal role of the LV is to provide an increased cardiac output. This is done primarily by the sympathetic nervous system as described under B. The elevation of blood pressure produces more resistance to LV ejection which results in an augmentation of contractility under the Starling hypothesis. The question of increased ven-

(Continued on page 443)

LEFT VENTRICULAR PERFORMANCE

(Continued from page 438)

tricular filling due to an increased venous return remains unanswered as the LV end diastolic volume is reduced as heart rate goes up.

VI. Left ventricular failure:

1. Compensated — when heart failure develops, the reserve capacity of the cardiovascular system is utilized to make up the deficit imposed by disease. Compensation of the circulatory system in general can be attained by more efficient extraction of oxygen and by increasing heart rate up to a certain point. Left ventricular compensation can occur by increased myocardial fiber contractility in response to a larger diastolic and systolic volume (Starlings' hypothesis). The myocardium must develop more systolic tension to eject the normal ejection fraction into the aorta under the circumstances of an increased volume load, therefore, the total energy expenditure at rest is much greater than normal. LV muscle mass is then increased through hypertrophy resulting in a greater myocardial oxygen consumption and, over a period of time, a precarious state of the LV.

2. Decompensated — the cardiovascular reserve capacity may become further depleted and the disease process curtails the maximal sustained cardiac output, resulting in decompensation. The LV cardiac output is maximal at all times and is unable to be elevated with stress or to meet resting demands.

Mechanical lesions may impair LV performance by increasing resistance to outflow (aortic stenosis and hypertension) or permit-

ting reflux of blood back into the chamber from which it came (aortic or mitral regurgitation). The result of this stress is dilatation and hypertrophy of the LV. Starlings' hypothesis compensates for a time, but the effects of expending a greater energy load to attain the same ejection and having to develop a higher wall tension to produce ejection eventually results in an exceeding of the optimum fiber length and tension with the result of LV failure.

Myocardial lesions (myocardial infarctions, cardiomyopathies) result in an actual destruction of myocardial fibers and loss of contractility, as well as, eventually dilatation of the chamber. Normal fibers hypertrophy to enable some degree of compensation, however, the dual effects of loss of contractility due to myocardial muscle destruction and hypertrophy and dilatation results in an inability to meet basal requirements.

The inability to maintain a satisfactory stroke volume and LV emptying results in a progressive increase in the LV end diastolic volume and pressure which is transmitted back into the left atrium, pulmonary veins, and pulmonary capillaries, the results being pulmonary edema and LV failure.

Example of pressures in development of LV failure

	LV	LA	PV	PC	PA
Normal	120/0-12 ED 5-12	5-12	12	25/12	
Left ventricular failure	120/0-35 ED 35	35	35	60/35	

This patient would develop clinical signs of LV failure and after a variable period of time, the RV would be unable to withstand the elevated PA pressure and also fail. □

President's Page



MID-WINTER MEETING

It is that time of the year again that we will soon have the Mid-Winter Meeting of the House of Delegates of the SCMA.

This year, the meeting will be held in Spartanburg on November 4, 5 and 6, 1977.

The Mid-Winter Meeting was the brainchild of Harold Hope, one of our Past Presidents, and his vision of its usefulness has been borne out.

The Spartanburg County Medical Society, under the leadership of Sidney Fulmer and with the valuable advice and assistance of the Councilor from the Ninth District, Euta Colvin, has done a great job of planning their part of the meeting. They are all looking forward to having the members of the South Carolina Medical Association visit Spartanburg.

I am pleased to say we will not be asking the membership for more money at this meeting, as was the case last year. However, let me make this point: The increase in dues has been well used to solidify our financial situation and improve all of our programs.

On the other hand, we do have many problems and issues involving the SCMA which need to be presented and discussed by the House of Delegates in November of 1977. It is hoped that the general membership will attend to give us the benefit of their views and opinions on such things as liability insurance, legislation, third party reimbursement, etc.

The Council of the South Carolina Medical Association and the physicians of Spartanburg, our hosts, invite you to attend the Mid-Winter meeting and urge you all to come be with us for the business and social session.

Waitus O. Tanner, M.D.
President

BIOETHICS CONFERENCE

CAPSTONE HOUSE —
UNIVERSITY OF S. C.

Columbia, S. C. — November 18-19, 1977

This Conference is sponsored by the Department of Philosophy of the University of South Carolina and the Division of Continuing Education, Medical University of South Carolina. It will offer attending physicians up to six Category I credit hours toward the AMA Physicians' Recognition Award, and six prescribed credit hours by the AAFP have been applied for. Registration is \$10.00 for physicians, \$5.00 for students, with an additional \$8.00 fee for the banquet. There is no charge for the social hour.

PROGRAM TOPICS:

"Rights of Patients and Health Professionals"

Speaker: Roy Branson — Kennedy Institute, Georgetown University

Respondents: Mark Tompkins, Government and International Studies, USC; O'Neill Barrett, Jr., School of Medicine, USC.

"Guardian Refusal of Medical Treatment"

Speaker: Robert M. Veatch — The Hastings Center

Respondents: Joan Altekruze, School of Medicine, USC; Nora Bell, Dept. of Philosophy, USC

"Behavior Control in a Free Society"

Speaker: Ruth Macklin — The Hastings Center

Respondents: Robert N. Milling, President, S. C. Branch, American Psychiatric Association; James L. Stiver, Dept. of Philosophy, USC

"The New Genetics: Problems and Prospects"

Speaker: Tabitha M. Powledge — The Hastings Center

Respondents: Sydney P. Craig, III, Dept. of Biology, USC; F. Patrick Hubbard, School of Law, USC.

Special events include a social hour and banquet on Friday, November 18.

Deadline for registration is November 1. For complete information and registration form, contact Dr. Roger Sullivan, Department of Philosophy, University of South Carolina, Columbia, S. C. 29208.

The Hilton Head Hospital *invites you to attend a Professional Symposium on WEIGHT CONTROL*

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SPEAKERS

Jerome L. Knittle, M.D., Professor and Director
Division of Nutrition and Metabolism
Mount Sinai School of Medicine, City University of
New York

New York, New York

TITLE: "Adipose Tissue Development in Man"

Buris R. Boshell, M.D., Professor and Medical Director
Diabetes Research and Educational Hospital
Department of Medicine, University of Alabama
School of Medicine

Birmingham, Alabama

TITLE: "Carbohydrate, Fat, and Protein in Relationship to
Weight Reduction"

Todd Rogers, M.S.

Weight Control Project, Pennsylvania State University
University Park, Pennsylvania

TITLE: "Behavior Modification in the Treatment
of Obesity"

Peter M. Miller, Ph.D., Director

Department of Behavioral Medicine and Weight
Control Center

Hilton Head Hospital

Hilton Head Island, South Carolina

Moultrie D. Plowden, Administrator, Hilton Head Hospital
Hilton Head Island, South Carolina

Full information may be secured either by calling Dr. Peter M. Miller, 803-785-6122 or by writing to him at the Hilton Head Hospital, Baygall Road, P. O. Box 1117, Hilton Head Island, S. C. 29928.

AUXILIARY PRESIDENT'S PAGE



LEADERSHIP CONFLUENCE

It was my pleasure to represent the South Carolina Medical Association Auxiliary in Chicago at the Leadership Confluence, October 9-12. The Confluence was limited to the National Board of Directors, members of standing and extension committee, 1977-78 state presidents and presidents-elect. Four county presidents-elect, Mrs. Randolph D. Smoak, Mrs. Herbert B. Niestat, Mrs. J. M. Twombly, and Mrs. Walter G. Bishop accompanied me and Mrs. Alton G. Brown.

The purpose of the Confluence was to increase the potential of auxiliary leadership. The program was a blend of general sessions and seminars, led by an outstanding group of speakers. To mention some: Ben Logan, broadcast producer, United Methodist Communications and member; Sheila Raviv, National Volunteer Organizations for Independent Living for the Aging; Marjorie A. Collins, National Council on Aging; and Mrs. Lt. Colonel C. Milton Anderson, Director, Salvation Army Greater Chicago Social Welfare Services. Eight topic seminars were introduced by a slide presentation.

The seminar, (1) *Impaired Physician*, focused on the spouses' role in casefinding and referral, including the family's role in the treatment process. It offered practical information on activities which auxiliaries can initiate in their states and community. (2) *On Being A Woman* dealt with the problems and concerns of women in these rapidly changing times. (3) *School Health* discussed health promotion; not disease prevention. Examples were presented with suggestions for auxiliary involvement. (4) *Television – Education on Positive Viewing*, which has been and is a concern to all of us, provided an opportunity to develop further knowledge and insight into this area of concern. (5) *The Family Unit – Shifting Values* dealt with the sources of value changes and how they have deteriorated the quality of life at all age levels. (6) *Volunteer Services for the Aging* offered assistance to local auxiliaries in establishing community projects. (7 & 8) *Techniques for Speaker and Parliamentary Procedures* were for leaders' information.

State Exhibits were set up for exchange of ideas. After hearing Dr. Budd and Mrs. Young at dinner on Sunday evening, everyone went on the State Exhibit Walk. We six who represented South Carolina came from the Confluence with a wealth of information, enthusiasm and determination to try to share with the auxiliaries and our communities what we have learned.

Mrs. Young, our National President, expressed it very well when she said, "Our success in community programs is a result that we care about people and we want to help them. The auxiliary is an organization of people who have values. Holding to these values will help make this a year of great achievement for us as individuals, for the auxiliary and for our communities."

We appreciated the privilege to serve and represent the South Carolina Association Auxiliary at the Confluence.

Mrs. Rufus H. Cain, Jr. (Elise), President

Editorials

UP WITH PEOPLE — DOWN WITH PAPERWORK

Doctors scream about having to spend so much time on paperwork, and it keeps getting worse. Nobody does anything about it — until — maybe?

The folks in Hampton County, South Carolina are enthusiastically working on a possible solution. This remarkable grassroots effort began with over 250 volunteers performing a door-to-door, county-wide survey that produced information to be computerized.

Under the auspices of a foundation created by a handful of physicians and leading citizens of Hampton County, they applied for a grant to implement this program and based a mini-computer in the only county hospital. Working closely with the Medical University, College of Medicine, specifically the Department of Family Practice, they designed questionnaires and applied technology, and the study was under way in the autumn of 1976.

The questionnaire that was completed by the volunteers was the nucleus of a health record of the approximately 16,500 residents of Hampton County, and was fed into the computer at the hospital. Each group of doctors in the county, of which there are seven, has a terminal, as do all four pharmacies and the Public Health Department, thus linking the health system of public and private medical and paramedical sources of health services.

Thus begins an effort in medical (health) records that should eliminate fragmentation, duplication, and overlapping of services that are constantly becoming more and more costly. In Hampton the linkage is possible by using a standardized summary of certain essential components of the citizens' individual health records. The crucial role of the pharmacist reflects the growing importance of drugs in the management of illness and maintenance of good health, as well as the increasing role of patient compliance in preventing complications of illness and indication of errors.

The Hampton County Project is to be highly commended, for I believe that it is an historic event in that it is a *first* application of the computer to a county-wide record system that will lead to less paperwork with more accurate data being available to the entire health care system.

I'm sure the reader has already asked, "What about confidentiality? Privileged communication? Government takeover?" These are questions that concern us all.

Here's how the folks in Hampton would answer these questions. Since over 75 percent of the county's residents participated voluntarily in the initial survey, as did all of the physicians, all the pharmacists, and the county department of public health, they recognize the computer as an instrument similar to the telephone, an instru-

ment that is community-based and community-supervised by a non-profit, broadly representative group of citizens concerned with their *people*. It is highly unlikely that the traditional relationship of trust and confidentiality between a doctor and his patients will be altered in a rural county like Hampton simply because a clerk is using a computer terminal to file a medical note, rather than using a typewriter and a filing cabinet. And besides this, there are individual code numbers that have to be used as a "key" to unlock the system in order to obtain information. I've witnessed this operation, and I personally feel that these questions have been thoroughly thought out. I have no fear of the loss of confidentiality or of any government takeover.

I see this project as a long-awaited beginning of

a possible solution to the problem of "so much paperwork" and "not enough concern with people." Automation of a community's health data records that makes information available to the entire health care system in this county must certainly improve the quality of care, reduce duplication of paperwork, and greatly benefit the *people*. I'll be watching it with great interest and hope to be able to apply it to my practice as soon as it is available for general use.

William E. Lotterhos, M.D.
Dean, Montgomery Area Health
Education Center
Director, Montgomery Family
Practice Program
Montgomery, Alabama

REFLECTIONS ON THE JOINT UNDERWRITING ASSOCIATION

On May 7, 1975, joint resolution #183 was approved by the Governor of the state of South Carolina. This provided for the writing of medical malpractice liability insurance through a Joint Underwriting Association.

This joint resolution, which has the effect of law, directed that all insurers authorized to write bodily injury insurance within the state would become a member of this association as a condition to continue to sell insurance within the state. The purpose of this Association was to provide medical malpractice insurance on a *self-supporting* basis, "to all licensed health care providers who could not obtain such insurance through normal channels or on a reasonable basis because of lack of competition for such insurance."

The resolution further directed that a fair non-discriminating plan of operation be developed and that "such plan of operation shall provide that any profit achieved by the Association shall be added to the reserves of the Association or returned to the policyholder as a dividend"; and that "any deficit sustained by the Association in a single year should be recouped, pursuant to the plan of operation and the rating plan then in effect by one or both of the following procedures:

1. An assessment upon the policyholders, such assessment not to be in excess of one additional annual premium at the current rate.
2. A rate increase applicable prospectively."

The resolution further provided that "resultant premium rates should be on an actuarially sound basis and should be calculated as being self-supporting." In the event that sufficient funds were not available for the sound financial operation of the Association, all members — that is the insurers — would be required to contribute to the financial requirements.

Within one year of experience it had become increasingly clear to the "captive insurance companies" and to the Board of Directors of the Joint Underwriting Association that the Association was not financially sound. The operating expenses and the claims record of the Association were examined by two actuaries, one employed by the JUA and one by the South Carolina Medical Association. The expenses of the Association were felt to be appropriate. They were, in fact, 10% below the expected level. Both actuaries felt that sufficient claims experience was not available to warrant conclusions on a local basis. Both actuaries did conclude, however, that a rate in-

crease varying from 60-210% beginning July, 1976 was indicated. The Board of Directors of the Association arranged for a rate filing for a 75% increase in premium feeling that this was an appropriate level for a rate increase. When this was denied by the Insurance Commission, litigation was begun by the Directors of the JUA to uphold the rate filing and an immediate assessment for a one year premium was imposed. Assuming the litigation ruled in favor of the rate filing, this would have amounted to 150% increase in premiums for each physician at the renewal of his contract.

These facts were discussed at the summer session of the House of Delegates of the South Carolina Medical Association and were considered again by the South Carolina Medical Association Council which met with the Insurance Commissioner at the direction of the House of Delegates. The Council of the South Carolina Medical Association had been instructed by the House of Delegates to negotiate a lesser rate increase that would placate the insurance industry's desire for solvency of the Association while allowing more time for development of actual claims experience within the South Carolina Joint Underwriting Association. As is known, such a compromise was reached and effective 7/1/77, each physician can expect to pay a 50% increase in his premiums next contract year.

To this writer this seems an appropriate increase. Serious constitutional questions arise when a company is compelled to participate in a business venture with liabilities but without an equal chance for profit. Specific reference is made to the North Carolina JUA which was overturned on just such a basis.

Thus far there have been no litigious moves on the part of the insurance industry to strike down the JUA of South Carolina. Consider, however, the position the industry found itself in when after two actuarial investigations, the Joint Underwriting Insurance Association was felt to be financially unsound.

Malpractice insurance is purchased for the personal protection it affords the individual. Who could have confidence in insurance purchased from a company, which after careful actuarial investigation, was felt to be financially unsound? It must also not be forgotten that the JUA by law must:

1. Be financially sound
2. Distribute any profits to the insured.

It would seem that the South Carolina Medical Association's actions in supporting a rate increase based on available data was an appropriate one and perhaps increasing claims experience will permit a more accurate appraisal of the necessary rates to maintain the solvency of the JUA.

John P. Sutton, M.D.

LETTERS TO THE EDITOR

The Editor:

The South Carolina Medical Association's "Doctor of the Day" program has been in operation for five years. During that time, both the nurses and the hundreds of physicians who have participated in this program have provided a valuable — and in some instances, an invaluable — public service to the legislators, State House employees and visitors.

In order to continue to render the most effective emergency treatment possible, the "Doctor of the Day" program needs a portable EKG machine.

We would greatly appreciate the donation of an EKG machine. If we are not able to obtain a machine by donation then we would welcome the opportunity to work out a purchase agreement, even though our budget is limited.

Your consideration of this matter will be greatly appreciated.

D. Strother Pope, M.D., SCMA
P. O. Box 11188
Columbia, S. C. 29211

MEETING ANNOUNCEMENTS

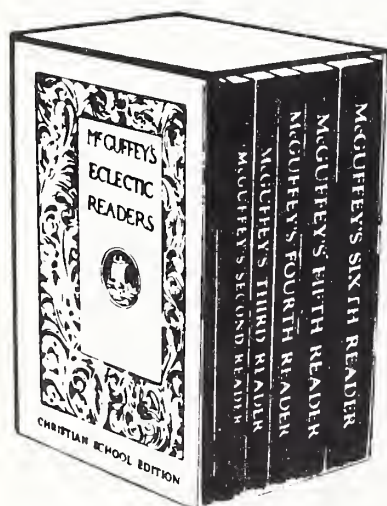
The Medical Association of Georgia's 1977 Scientific Assembly will be held November 17-20, 1977 at the Omni International Hotel in Atlanta. The expanded program this year offers a full-day interdisciplinary workshop on Asthma and scientific sessions in 16 specialties, all of which meet the criteria for AMA Category 1 and AAFP elective credit.

* * *

The 29th Annual Meeting of the S. C. Chapter, AAFP, will be held November 30 - December 3, 1977 at the Hyatt Hotel on Hilton Head Island. Over 30 hours of continuing medical education credit is available. Send your request for program and reservation card to: P. O. Box 442, Laurens, S. C. 29360.

CONGRATULATIONS TO MUSC STUDENT WINNERS

Congratulations to Ronald G. Steen, Carole L. Smith, and David H. Vesole, students at the Medical University of South Carolina, who were the 1977 recipients of the awards for student research papers.



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There is no experience in pregnant women who have received this drug.

The drug has not been extensively studied in children under two years; therefore, in the treatment of children under the age of two years, the relative benefit/risk should be considered.

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The Journal of the South Carolina Medical Association

**SOUTH CAROLINA MEDICAL ASSOCIATION
1977 MID-WINTER CONFERENCE
November 4, 5 and 6, 1977
Sheraton Motor Inn, Spartanburg, South Carolina**

FRIDAY, NOVEMBER 4, 1977

- 9:00 a.m. - 12:30 p.m. Practice Productivity, Inc., Workshop (Financial Management) — Room C
1:30 p.m. - 5:00 p.m. Practice Productivity, Inc., Workshop (Time Management) — Room C
5:30 p.m. SOC PAC Board Meeting
5:00 p.m. - 8:30 p.m. Registration — Lobby of Sheraton
8:00 p.m. - 9:30 p.m. SCMA Reception — Banquet Rooms A, B and C

SATURDAY, NOVEMBER 5, 1977

- 7:30 a.m. Council Breakfast — Lounge
Council Meeting — Banquet Room C
7:30 a.m. Reference Committee Chairmen Breakfast — Main Dining Room
8:00 a.m. Registration — Lobby
8:30 a.m. - 11:30 a.m. Standing Committee Meetings — Banquet Rooms A and B and 5 Parlours
10:30 a.m. Coffee and Coke Break — Lobby
12:30 p.m. Council Lunch — Main Dining Room
1:30 p.m. - 3:30 p.m. House of Delegates — Banquet Rooms A, B and C
3:00 p.m. Coffee and Coke Break — Lobby
3:30 p.m. Reference Committee Meetings — Banquet Rooms A, B and C and 5 Parlours
7:30 p.m. - 8:30 p.m. Reception to be hosted by Spartanburg County Medical Society — Converse Alumnae House

SUNDAY, NOVEMBER 6, 1977

- 7:30 a.m. Council Breakfast and Meeting — Lounge
7:30 a.m. Reference Committee Chairmen Breakfast — Main Dining Room
9:00 a.m. House of Delegates Session — Banquet Rooms A, B and C
12:15 p.m. House Recess: Ten-Minute Non-Denominational Religious Service
12:30 p.m. - 1:30 p.m. SCMA Buffet Luncheon — Main Dining Room

PHYSICIAN RECRUITMENT/PLACEMENT

The following physicians are actively seeking practice appointments in South Carolina:

FAMILY PRACTICE, GENERAL PRACTICE — Age, 44. University of Minnesota Medical School, Minneapolis, Minnesota, 1958. Residency, Hollywood Presbyterian Hospital, Hollywood, California, 7/69-3/70. Ophthalmology. Licensed in Minn. and Calif. Board eligible, Family Practice. Seeks solo, partnership, industrial or emergency room practice. Prefers Midlands or Upstate area of state. First year income open. Available 10/77.

RADIOLOGY — Age, 47. University of Tennessee, Memphis, Tenn., 1958. Residency, Erlanger Hospital, Chattanooga, Tenn., 7/73-7/76, Radiology. Licensed in four states. Board eligible. Currently in practice situation. Served in U. S. Navy, 1948-52. Seeks solo, partnership or multi-specialty group type of practice in community of 10,000-25,000 near the coast. First year income open. Available immediately.

GENERAL SURGERY ABDOMINAL, COLON & RECTAL SURGERY — Age, 42. Washington School of Medicine, St. Louis, Mis-

souri, 1958. Internship, Jewish Hospital of St. Louis, Mo., 7/58-6/59. Residency, U. S. Naval Hosp., Phila., Pa., 7/64-7/68. Licensed in Fla. and Mo. Board certified. Currently in practice situation. Seeks partnership, single-specialty group or solo type of practice in large metropolitan community. No preference as to area of state. First year income open. Available 10/78.

RHEUMATOLOGY INTERNAL MEDICINE — Age, 34. University of North Carolina, Chapel Hill, N. C., 1969. Internship, Yale, New Haven, Conn., 7/69-7/70. Residency, Duke, Durham, N. C., 7/74-7/76, Internal Medicine; Rheumatology, Duke, 1/74-7/74 and 7/76-12/77. Board certified, Int. Med. Board eligible, Rheumatology, 12/77. Seeks single-specialty or multi-specialty group, or partnership type of practice in medium-sized community. Salary open. Available Dec., 1977.

If interested in any of these physicians or seeking a physician to join your practice, contact:

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We encourage original articles of potential benefit and interest to the members of the South Carolina Medical Association; priorities for publication are indicated in the January 1977 issues of The Journal. Concise articles (of approximately 8 typewritten pages), containing relatively few, well-selected references, are preferred. References should be cited in the text in superscript, e.g., "Bone and colleagues² . . .", and should conform to the following style: "2. Bone, RC, Francis, PB, Pierce, AK: Intravascular coagulation associated with adult respiratory distress syndrome. Amer J Med 61: 585-589, 1976." Ordinarily, publication of four small illustrations or the equivalent will be paid for by The Journal. Authors may assume cost of additional figures. Manuscripts should be typewritten and double-spaced. The original and one copy should be submitted; a third copy should be retained by the author for use in proofing. Reprints will be made available by the publisher at established rates.

NEOPLASMS OF THE SMALL INTESTINE*

RUFUS W. WATKINS, M.D.**

JOHN E. BOTTSFORD, M.D.***

AUBURN WOODS, M.D.****

EUTA M. COLVIN, M.D.*****

WILLIAM McA. DAVIS, M.D.*****

In spite of its long length and tremendous absorptive area, the small bowel is a relatively uncommon site of primary neoplasms. The lesions that do occur in the small bowel are of widely differing histologic types and vary from the indolent benign lipoma to aggressive malignant adenocarcinomas. While the tumors are of variable histology, the symptoms are relatively constant. Lower intestinal tract hemorrhage, obstructive symptoms, chronic abdominal pain, and palpable masses, are the usual presentations.

MATERIALS AND METHODS

All patients with a diagnosis of small bowel neoplasm in the practice of attending surgeons from 1970 to 1977 at Spartanburg General Hospital, Spartanburg, South Carolina, were included in this retrospective review. Only primary small bowel lesions were included. Tumors of the ampulla of Vater and the familial syndromes such as the Peutz-Jeghers syndrome were not included.

During this seven and one-half year period, 25 patients were admitted with an ultimate diag-

nosis of primary small bowel neoplasm. Sixty-eight percent were diagnosed beyond the age of forty years, with three peaks of incidence at 31-40, 51-60, and 61-70 years. At the time of diagnosis, the youngest was fourteen years, the oldest ninety years, with an average age of fifty-eight. (Figure I)

FIGURE I

<u>AGE</u>	<u>NUMBER OF PATIENTS</u>
10-20	2
21-30	2
31-40	4
41-50	1
51-60	6
61-70	5
71-80	3
81-	<u>2</u>
TOTAL	25
Youngest Age	- 14
Oldest Age	- 90
Average Age	- 54

* Read before the 29th Annual Meeting of the South Carolina Surgical Society, June 3, 1977, Sea Island, Georgia.

** Surgery Resident, Spartanburg General Hospital

*** Acting Director of Education - Surgery, Spartanburg General Hospital

**** Surgery Resident, Spartanburg General Hospital

***** Associate Clinical Professor - Surgery, MUSC

***** Associate Clinical Professor - Pathology, MUSC

SMALL INTESTINAL NEOPLASMS

Sources of information were the medical records departments, the Spartanburg General Hospital state cancer registry office, the department of pathology, and office records of individual surgeons. All microscopic slides were reviewed by one group of pathologists.

RESULTS

The 25 primary small bowel lesions represent ten different histologic patterns. (Table I)

Eighteen of these tumors were benign, with seven lesions malignant. Two of the three carcinoids were metastatic at time of diagnosis.

Seventeen patients presented with complaints referable to the small bowel lesion. (Table II) Only eight patients had a small bowel lesion that was discovered during the course of surgery on other intra-abdominal organs. During the time period, approximately 1,200 laparotomies were performed illustrating the rarity of these lesions.

The gross pathology of these small bowel neoplasms is characteristic but cannot always be used to differentiate confidently between benign and malignant processes.

The lipomas were soft, polypoid submucosal lesions of mature fatty tissue. The fibromas were asymptomatic, incidental findings, in this series, but were troublesome because their pale, hard character made the operating surgeons think they were metastatic lesions. Both the fibromas and leiomyomas were firm, rubbery and generally incorporated in the muscular wall as a discreet ovoid to spherical mass with an intact overlying mucosa. The histology is that of uniform interlacing bundles of spindle cells with variable

amounts of collagen deposition and negligible mitotic activity. The two largest leiomyomas were vascular lesions in which a rich capillary and cavernous vascularity was associated with recent and old hemorrhage, with perforation through the overlying mucosa in one case. The solitary leiomyosarcoma was grossly an ulcerated polyp with microscopic foci of hemorrhage and anaplastic smooth muscle cells with frequent mitoses.

The primary intestinal lymphoma was characterized by a 4cm area of thickening in the wall with a granular elevated serosal surface and focally ulcerated mucosa. It was composed of sheets of small lymphoid cells infiltrating the muscularis to form subserosal aggregates.

There were three carcinoids in this series, two of which were metastatic at time of diagnosis. The third was the usual submucosal raised yellow nodule. The histology is that of an organoid arrangement of rather uniform polygonal neuroendocrine cells in nests. The heterotopic pancreatic tissue was well organized into ducts and acini and even had normal appearing islets.

Adenocarcinoma is considered to be the most common malignant small bowel tumor, occurring most often in the duodenum, followed by the ileum. Usually far advanced at the time of diagnosis, the histologic features are those of an infiltrating adenocarcinoma. Polyps of the small bowel were adenomas that resembled their intestinal source.

The symptoms related to individual tumors are shown in Table III. Benign tumors caused symptoms as frequently as malignant tumors. Symptoms of bowel obstruction were most com-

TABLE I
TYPES OF LESIONS

LESION	BENIGN	MALIGNANT
Adenocarcinoma		2
Carcinoid		3
Fibroma	2	
Hemangio-leiomyoma	3	
Heterotopic Pancreas	3	
Leiomyoma	5	
Leiomyosarcoma		1
Lipoma	4	
Lymphosarcoma		1
Polyp	1	—
TOTAL	18	7

TABLE II
TYPES OF SMALL BOWEL NEOPLASMS PRESENTING AS

PRIMARY LESIONS	
Adenocarcinoma	2
Heterotopic Pancreas	1
Lipoma	3
Polyp	1
Carcinoid	2
Leiomyosarcoma	1
Leiomyoma	3
Lymphosarcoma	1
Hemangio-leiomyoma	3
TOTAL	17

SMALL INTESTINAL NEOPLASMS

TABLE III
CLINICAL MANIFESTATIONS
PRIMARY SMALL BOWEL NEOPLASMS

Small Bowel Obstruction	Adenocarcinoma (2)
	Carcinoid (2)
	Leiomyosarcoma
	Lipoma (Partial)
Melena or Hematochezia	Hemangio-leiomyoma (2)
	Leiomyoma (3)
	Lymphosarcoma (1)
	Polyp (1)
Abdominal Mass	Hemangio-leiomyoma
	Leiomyoma
Partial Pyloric Obstruction	Heterotopic Pancreas
Intussusception	Lipoma

TABLE IV
SITES OF LESIONS

LESION	DUODENUM	JEJUNUM	ILEUM
Adenocarcinoma	1	1	
Carcinoid		1	2
Fibroid			2
Hemangio-leiomyoma	2		1
Heterotopic Pancreas	2		1
Leiomyoma	1	2	2
Leiomyosarcoma		1	
Lipoma	1		3
Lymphosarcoma			1
Polyp	—	1	—
	7(28%)	6(24%)	12(48%)

mon, with melena and hematochezia second. A palpable abdominal mass was also found. Neither patient with metastatic carcinoid had the carcinoid syndrome; both presented with signs of intermittent bowel obstruction. The carcinomas both presented with partial bowel obstruction, which is a late feature in their course, since the liquid contents of the small bowel readily pass through constricting lesions. Life threatening hemorrhage occurred in two patients with vascular leiomyomas. Neither of these tumors was diagnosed preoperatively.

In general, malignancy in the small bowel is more common proximally,^{1, 2} while benign tumors are more common distally (Table IV). However, this varies in different series.³ Review of reported cases indicates that carcinoids are most common in the ileum, while adenocarcinomas occur more in the duodenum. Leiomyosarcoma and lymphomas show a slight tendency towards the ileum.^{4, 2, 5}

In our limited series, seven lesions were found in the duodenum, six in the jejunum and twelve lesions were found in the ileum. There were both benign and malignant lesions in each location. There seemed to be no discernable difference in the symptoms based upon location of the tumor in different areas of the bowel.

DISCUSSION

The etiology of small bowel tumors and their rarity in comparison to the frequency of tumors in other parts of the gastrointestinal tract has

led many authors to speculate upon the mechanisms protecting the small bowel from carcinogens. Many suggest that the rapid transit time of food through the small bowel decreases mucosal contact with carcinogens.^{1, 6} Wattenberg states that benzpyrene hydroylase, an enzyme responsible for detoxifying several carcinogens, is present in the small bowel in high quantities. This may help eliminate potent carcinogens from the gut.^{7, 8} The high IgA concentration in the small bowel might help ward off viral carcinogens.^{6, 9} Finally, the high rate of turnover of the small bowel mucosa might allow malignant cells to slough off and be replaced by benign cells before invasion can occur.^{3, 10}

The percentages of different tumor types vary in different series. If tumors of the ampulla of Vater are included, adenocarcinomas are by far the most common malignant small bowel tumors.⁵ If ampullary tumors are excluded, then adenocarcinomas are fairly evenly distributed throughout the small bowel and their frequency is about equal to that of carcinoids, sarcomas, and lymphomas. As malignant tumors usually cause symptoms, they are often more common in surgical series than benign lesions. However, asymptomatic benign lesions appear more commonly in autopsy series.¹¹ Treatment for benign lesions of the small bowel rarely presents a difficult problem; simple wedge excision is usually easily performed and is curative. However, malignant lesions present difficult problems be-

SMALL INTESTINAL NEOPLASMS

cause a true radical procedure is impossible. The lymph nodes draining the small intestine are adjacent to the vascular supply not only of the small bowel but also of the proximal colon. A true radical operation would require sacrifice of most of the small bowel and the proximal colon. For this reason, adequate segmental resection with removal of regional lymph nodes is advised for malignant tumors.

Most authorities recommend generous resection of intussusception in adult patients, not reduction or manipulation, as the intussusception is led by a malignant mass. One such case was seen in our series.

Two types of tumors deserve special resection techniques. Carcinoid tumors should always be resected as thoroughly as possible, even with grossly metastatic disease. Metastatic deposits should also be removed if possible, since the carcinoid syndrome and the quality and length of the patient's life are related to the quantity of tumor mass. Since it is a slow growing tumor, palliation with debulking procedures is often quite effective. One patient in our series is alive,

seven years post diagnosis of metastatic disease. She has had two debulking procedures during the past seven years.

Adenocarcinomas also present special problems as they frequently occur in the duodenum in close association with other vital organs. Because of the uniformly poor results in all series reported, it is doubtful that super radical procedures are indicated in more than an occasional case.^{3, 12}

Lymphomas of the small bowel should be excised as carefully as possible, since this site may be the only involved area of the body and cures have been reported following resection only. Probably at present some form of radiation therapy plus chemotherapy should be included.

SUMMARY

Small bowel tumors are rare. The incidence increases towards the ileum and with age. They present with non-specific symptoms; primarily, small bowel obstruction, hemorrhage, pain, or mass. Small bowel neoplasms should be ruled out if other areas are not found to contain pathol-



FIGURE II — This ulcerated leiomyosarcoma from the ileum of an 88-year-old man presented with chronic intermittent bleeding and signs of obstruction.



FIGURE III — This is the resected, unreduced intussusception led by the leiomyosarcoma shown in Figure II.

ogy at surgery. Local segmental or wedge resection is appropriate therapy for benign lesions. Adequate local excision and removal of regional lymph nodes is recommended for malignant tumors. □

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ACETAMINOPHEN OVERDOSAGE*

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Acetaminophen is recognized as a very safe minor analgesic when taken in usual therapeutic doses. However, when ingested in excessive quantities, acetaminophen can cause significant liver damage through the generation of a hepatotoxic metabolite.¹ A distinctive characteristic of acetaminophen intoxication is a time lag (> 48 hours) between drug ingestion and appearance of signs and symptoms of liver toxicity.² In the case described below, the patient did not receive medical attention until four days after acetaminophen overdosage, by which time overt evidence of severe liver damage had developed.

CASE PRESENTATION

A 34-year-old black man presented at the Veterans Administration Hospital in Charleston, South Carolina with jaundice of 24 hours' duration. The patient denied past history of jaundice or hepatitis; he also denied parenteral use of illicit drugs and consumption of shellfish. He usually drank a pint of liquor a week. Four days before admission, he reportedly ingested, with suicidal intent, approximately 50 Tylenol® (acetaminophen 325 mg) tablets, 100 tablets Darvocet-N® (propoxyphene napsylate 50 mg and acetaminophen 325 mg), and 650 mg of phenobarbital. He slept at home for the first two days after the drug ingestion, and then awoke with nausea and vomiting. Cigarettes no longer appealed to him and he lost his appetite. The day before admission he noticed dark urine, black stools, and yellow sclerae, and he vomited coffee-ground material.

Physical examination on admission revealed a slightly lethargic man with supine blood pressure 156/88 mmHg, pulse 98 beats/min, respirations 20/min, and oral temperature 38°C. His sclerae, palms and upper torso were icteric. The non-tender liver was percussed to a breadth of 9 cm, and was barely palpable at the right costal margin. Bilateral costovertebral angle tenderness was noted. Stool contained occult blood. The remainder of the physical examination, including neurological assessment, was unremarkable.

Liver function parameters were strikingly abnormal: direct bilirubin 24 mg/dl, total bilirubin 31 mg/dl, LDH 553 mU/ml, SGOT 438 mU/ml, alkaline phosphatase 118 mU/ml. Prothrombin time was 14 seconds (control, 10 seconds) and BUN 67 mg/dl. The urine was tea-colored with a specific gravity of 1.007 and contained granular, hyaline, and red blood cell casts. Urine culture was sterile. There was a neutrophilic leukocytosis with total white cell count of 13,400, hematocrit of 31% and normal red blood indices and peripheral smear.

The patient appeared to have four medical problems related to acetaminophen overdosage: 1) hepatic damage, 2) renal impairment, and 3) gastrointestinal bleeding with 4) secondary anemia. Each of these problems will be discussed below, with relevant clinical parameters summarized in Figures 1-3.

1) *Acetaminophen associated hepatotoxicity:* The marked elevation in the patient's serum bilirubin, LDH and SGOT, the moderate rise in alkaline phosphatase, and the prolonged prothrombin time suggested he has sustained a severe hepatic insult (Fig. 1). Based on the patient's description of the amount of drug taken,

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admittedly an unreliable source of data in an attempted suicide case, it was estimated that he may have ingested as much as 75 grams of acetaminophen. The patient was considered to have a poor prognosis, since there is a report of fatal fulminant hepatic failure after ingestion of 25 grams.² Measures to prevent hepatic encephalopathy were instituted: cleansing enemas, oral neomycin, and dietary protein restriction.

Intravenous administration of vitamin K and fresh frozen plasma resulted in prompt normalization of prothrombin time. The patient's bilirubin and liver enzyme levels fell steadily, but were still somewhat elevated on the tenth hospital day, 14 days after the drug ingestion. At that time the patient's icterus had nearly disappeared. Leukocytosis and persistent fever, which were thought to be additional manifestations of liver damage, resolved slowly. A liver biopsy performed on the twelfth hospital day, after normalization of prothrombin time, revealed centrilobular necrosis, a finding consistent with acetaminophen hepatotoxicity.

2) *Renal impairment:* Acetaminophen associated renal tubular damage was suspected in our patient (Fig. 2). The exact cause of nephrotoxicity following acetaminophen intoxication is unknown, but is probably of the hepatorenal type. Nevertheless, the possibility of a direct toxic effect on the kidney has not been ruled out.

Our patient's renal status was complicated by some degree of dehydration due to vomiting prior to hospital admission. Fluid intake and output were carefully monitored and appropriate fluid replacement was instituted. Neomycin was discontinued in view of the patient's azotemia. After the first week of hospitalization, casts were no longer present in urine, and a few days later BUN was within normal range. The patient's serum creatinine was normal upon repeat de-

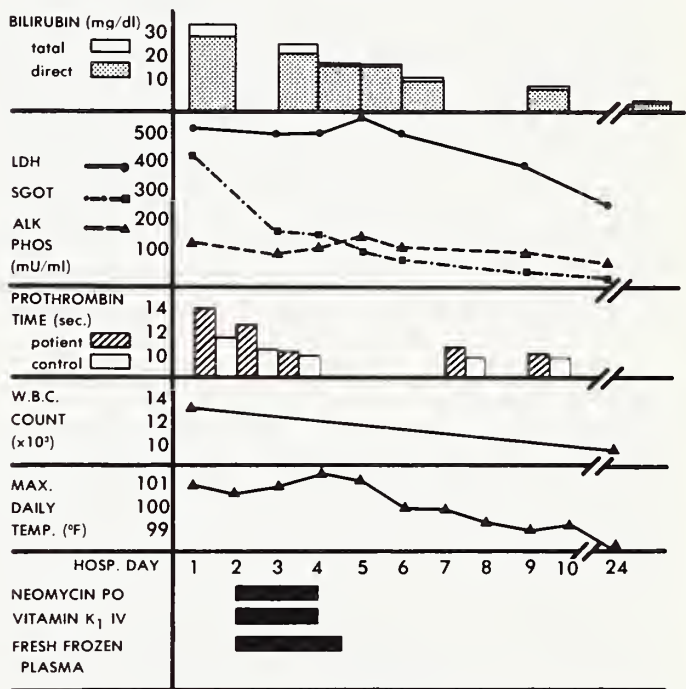


FIG. 1 — Clinical course and therapy related to hepatotoxicity following acetaminophen overdose.

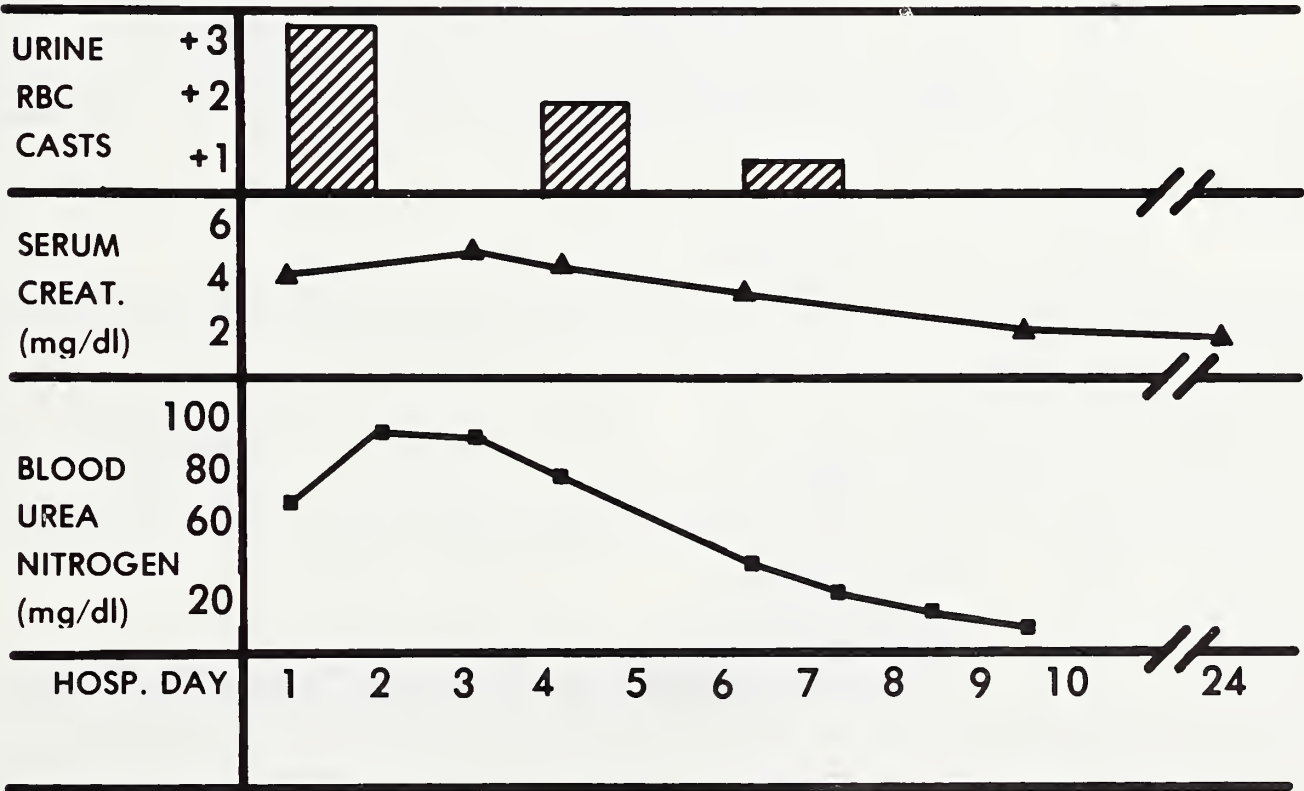


FIG. 2 — Clinical parameters suggesting nephrotoxicity after acetaminophen overdose.

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termination about four weeks after the overdosage.

3) *GI bleeding* and 4) *Anemia*: The patient's anemia was thought to be due primarily to upper gastrointestinal blood loss, as he reported having coffee-ground emesis prior to admission and had several Hematest-positive stools while in hospital (Fig. 3). The blood loss may have been secondary to gastritis caused by massive acetaminophen ingestion and a result of hypoprothrombinemia subsequent to acetaminophen associated liver damage. Intensive antacid therapy was maintained throughout the patient's hospital stay. After the third hospital day, stool was no longer Hematest-positive. The patient's hematocrit rose satisfactorily with clotting factor supplementation and administration of packed cells. Results of a GI series performed just prior to discharge were normal.

DISCUSSION

Clinical Course of Acetaminophen Intoxication: Within hours after acetaminophen overdosage, patients experience anorexia, nausea, vomiting, and diaphoresis of varying severity. Central

nervous system depression generally is not seen unless other agents, such as barbiturates, tranquilizers, propoxyphene and alcohol, are also consumed.³

Jaundice does not usually appear until 48 hours or more after acetaminophen overdosage. Often patients will not seek medical attention, as was the case with this patient, until jaundice has developed and liver toxicity has progressed to a serious or life-threatening stage. By the third to fifth days after overdosage, hepatic necrotic sequelae (hypoglycemia, coagulation defects, hepatic encephalopathy) may become evident, and serum bilirubin, SGOT, and prothrombin values reach peak levels. Clark *et al.* observed that of 60 individuals who claimed to have ingested 12-100 g of acetaminophen, 40 had biochemical evidence of liver damage. Fifteen became comatose and 12 died in hepatic failure. In patients who survive acetaminophen intoxication, indices of liver function can be expected to return to normal levels in two to four weeks.²

Although the cardinal manifestations of acetaminophen intoxication are related to hepatotoxicity, there are other adverse effects of

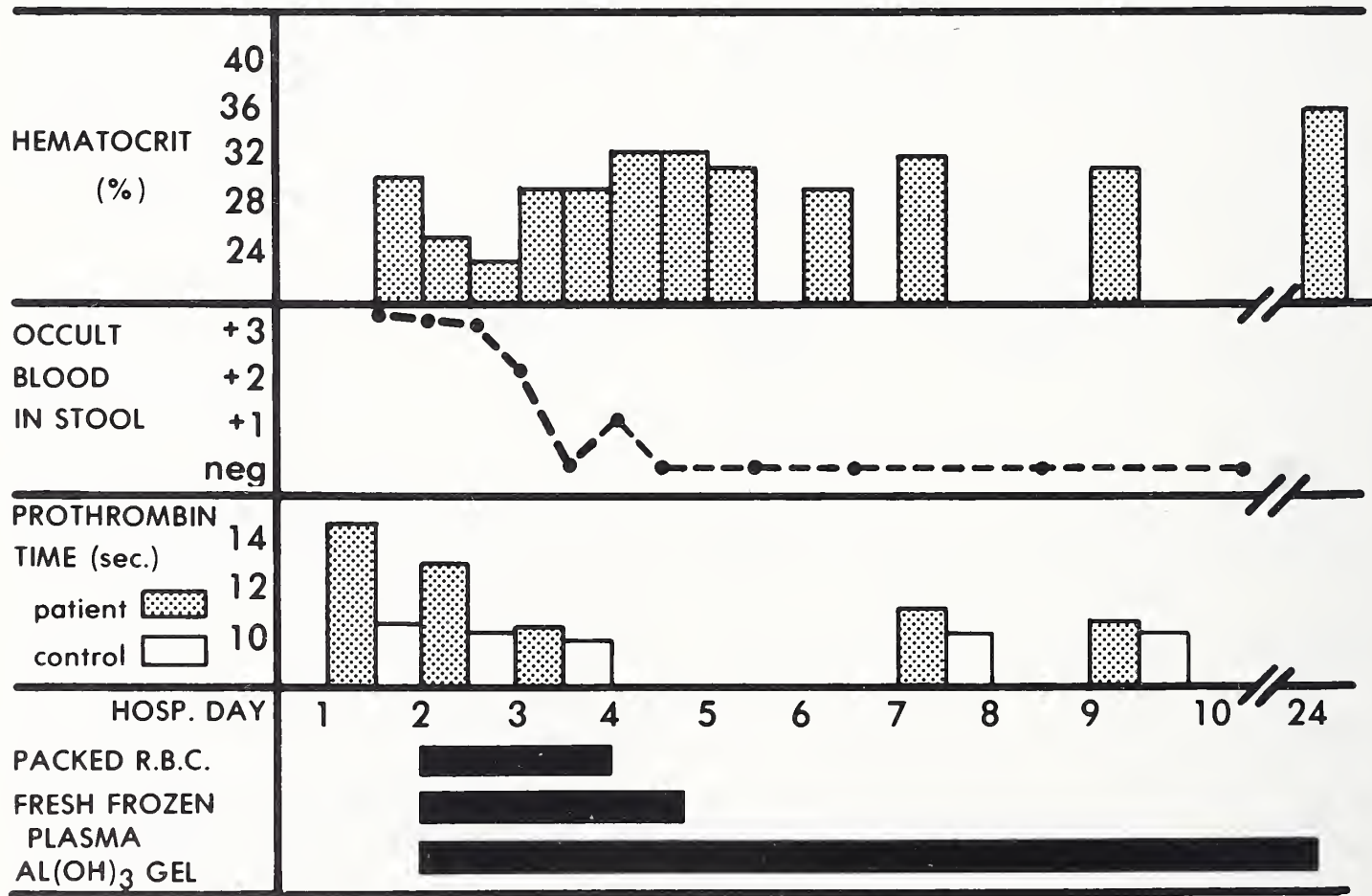


FIG. 3 — Clinical course and therapy related to gastrointestinal blood loss and anemia after acetaminophen overdosage.

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acetaminophen overdose which must be considered. As was the case with our patient, tubular necrosis may develop,³ and has been reported to occur in the absence of severe hepatic damage. Hypoglycemia may be seen in conjunction with acetaminophen associated liver necrosis. Myocardial damage, evidenced by elevated CPK values and electrocardiographic changes, has been described in connection with acetaminophen overdose, but these findings have been disputed.

Prognostic Factors: As with most drug intoxications, it is difficult to define toxic and lethal quantities for acetaminophen. Biochemical and clinical evidence of liver damage has been reported after ingestion of as little as 6 g,⁴ and death has occurred after ingestion of 25 g.² Clark *et al.*² found little correlation between alleged ingested acetaminophen dose and clinical outcome in their previously mentioned series of 60 patients. However, they did note that hepatic encephalopathy and death were limited to those patients with serum bilirubin levels of greater than 4 mg/dl and with prothrombin-time ratios of more than 2.2 on the third to fifth days after acetaminophen overdose (Fig. 4).

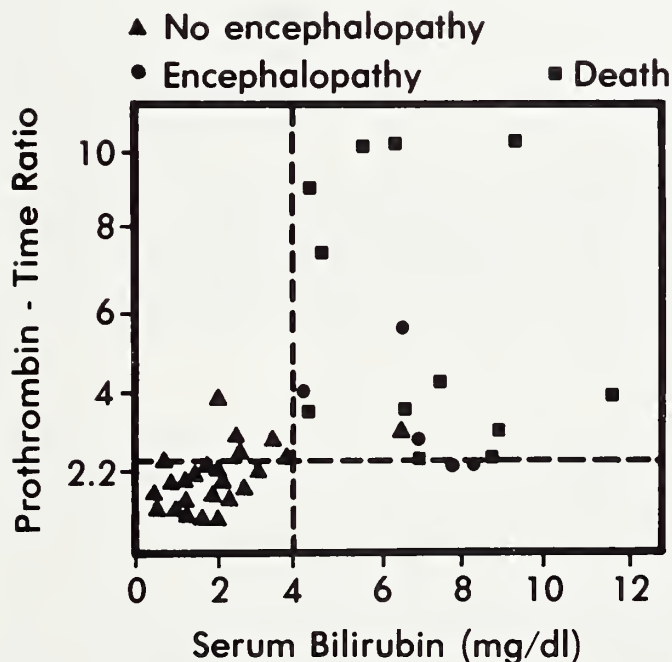


FIG. 4 — Peak values of serum bilirubin and prothrombin time ratio in 42 patients on the 3rd to 5th days after ingestion of acetaminophen.

— — — The critical levels below which there were no deaths and no encephalopathy. (Reproduced with permission from the authors²)

Plasma acetaminophen levels can be of assistance in predicting outcome. Prescott *et al.*⁵ reported a greater incidence of liver damage and higher mortality in patients with plasma acetaminophen levels exceeding 300 $\mu\text{g/ml}$ at 4 hours after drug ingestion or exceeding 50 $\mu\text{g/ml}$ at 12 hours. Among 30 patients, they found no evidence of liver toxicity in those whose 4-hour acetaminophen levels were less than 120 $\mu\text{g/ml}$.

Prescott *et al.*⁵ also observed that in patients with acetaminophen intoxication the plasma half-life of the drug was often prolonged (normal $t_{1/2}$, 2-3 hrs) and that the extent of this prolongation was indicative of the severity of later developing liver damage. They reported that a plasma half-life exceeding 4 hours was usually associated with development of biochemical and clinical evidence of hepatic necrosis and that a half-life of greater than 12 hours was associated with development of hepatic coma.

The most reliable predictor of the severity of liver damage seems to be a combination of both acetaminophen plasma level and plasma half-life data. Prescott *et al.*⁶ devised a figure, based on these two parameters, which can be used to assist in predicting the probability and extent of hepatic injury (Fig. 5). As can be seen in this figure, an overdose patient who presents with an acetaminophen plasma level of 400 $\mu\text{g/ml}$ at 5 hours after drug ingestion should be considered at risk of developing severe and possibly fatal liver dam-

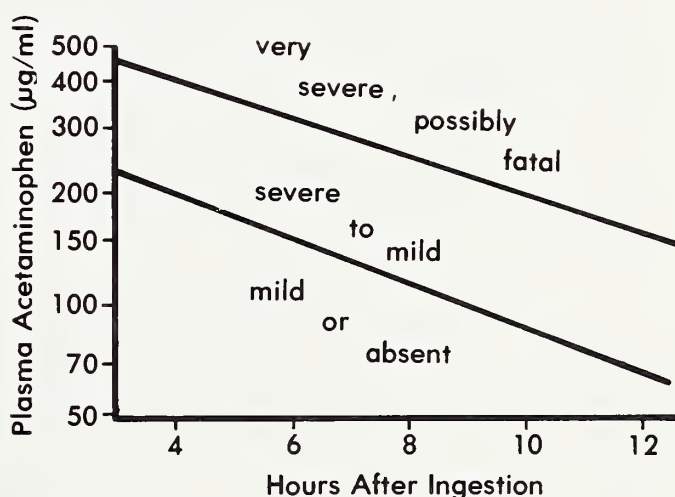


FIG. 5 — Assessment of the probability of liver damage according to the plasma acetaminophen concentration in relation to time after ingestion. (Reproduced with permission from the authors⁶)

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age. If a second plasma level determined at 7 hours after drug ingestion is found to be 200 $\mu\text{g/ml}$, indicating a normal half-life, then the probability of severe hepatic necrosis is considerably reduced. If, on the other hand, the patient's acetaminophen level is 375 $\mu\text{g/ml}$ at 7 hours, indicating a substantially prolonged half-life, the likelihood of fatal liver damage is greatly increased.

Although this type of plasma half-life information is a useful predictor, there are, of course, exceptions. Prescott *et al.* have described two such exceptional acetaminophen overdose cases. In one of these cases, a patient with anorexia nervosa had an acetaminophen plasma half-life of 6.4 hours and yet did not exhibit signs of liver damage. It was speculated that her malnourished state had resulted in an alteration in acetaminophen metabolism and hence a reduction in production of its hepatotoxic metabolite. A second patient with chronic cirrhosis developed striking elevations in serum liver enzymes and bilirubin despite a plasma half-life of only 2.6 hours; chronic underlying liver disease may have been responsible for this apparent increased susceptibility to acetaminophen hepatotoxicity.

Current Treatment: Acetaminophen overdose cases can be deceptive in that the patient may at first appear relatively well, but may later go on to develop severe liver damage. This is illustrated by a recently reported case in which a 16 year old woman was admitted to hospital a few hours after supposedly ingesting approximately 6 grams of acetaminophen.⁴ An emetic and activated charcoal were administered, and she was discharged. Three days later she presented with vomiting, liver tenderness, and elevated serum bilirubin and liver enzymes.

Emesis should be induced if the patient is conscious, and then activated charcoal and a cathartic can be administered in an effort to reduce further drug absorption.⁷

Serum bilirubin, transaminase levels and prothrombin time should be monitored to assess the extent of liver damage and to follow the patient's progress. Acetaminophen plasma levels should be measured, if possible, in order to determine whether the patient actually ingested acetaminophen and to predict the degree of liver damage, as discussed above. General measures for the management of hepatic failure and prevention of hepatic encephalopathy should be in-

stituted if these developments appear likely. In addition to monitoring liver function, patients should be observed for development of nephrotoxicity, coagulation defects, and gastrointestinal bleeding.

Mechanism of Hepatotoxicity – A Basis for Future Therapy: Most of a therapeutic dose of acetaminophen is conjugated with sulfate or glucuronic acid and excreted. A small amount is oxidized, via the hepatic cytochrome P-450 drug metabolizing enzymes, to a chemically reactive arylating agent. After ingestion of a therapeutic dose of acetaminophen, this reactive metabolite is inactivated by covalently binding to hepatic glutathione (Fig. 6). When a massive dose of acetaminophen is ingested, hepatic glutathione is exhausted and the reactive metabolite is then free to bind to thiol and other nucleophilic groups in hepatic macromolecules. This appears to be the initiating event in acetaminophen hepatic injury.⁸

Animal experiments involving agents which alter hepatic metabolism of acetaminophen provide evidence to support the theory that it is an acetaminophen metabolite, rather than unchanged drug, which causes liver damage. Inhibitors of hepatic drug metabolism have been shown to reduce the hepatotoxicity of acetaminophen. Conversely, pretreatment of animals with agents, such as phenobarbital, which are known to enhance acetaminophen metabolism have been shown to increase its hepatotoxicity. Clinically, it has been observed that patients who chronically ingested phenobarbital shortly before acetaminophen overdose tended to develop more severe liver damage. Considering this observation, it is interesting to note that our patient may have been taking phenobarbital chronically before acetaminophen overdose.

Future Therapy: Research into the molecular mechanism of acetaminophen hepatotoxicity has yielded a basis on which to develop and evaluate rational, specific treatment for acetaminophen poisoning. Most of the work in this area has centered on developing an "alternate nucleophile," that is, a glutathione-like agent which can bind acetaminophen's reactive metabolite and thus protect nucleophilic constituents of the hepatocytes.

In Europe, alternate nucleophile therapy has become the treatment of choice for patients pre-

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senting within 10 hours after acetaminophen overdose. These agents are of less value when administered more than 10 hours after the overdose since, by that time, acetaminophen's reactive metabolite has become bound to liver macromolecules and has already initiated hepatic damage. It should be noted that the alternate nucleophiles described below are not currently approved by the Food and Drug Administration for use in acetaminophen overdose.

While administration of glutathione itself would appear to be a logical method of preventing acetaminophen hepatotoxicity (refer back to Fig. 6), exogenous glutathione is not readily taken up by cells. On the other hand, its precursors — cysteine and methionine — are. Concomitant administration of methionine with acetaminophen has been shown to decrease acetaminophen hepatotoxicity in rats and mice. Crome *et al.*⁹ reported that administration of methionine within 10 hours after overdose appeared to reduce acetaminophen related liver damage in patients at risk. Cysteamine, another alternate nucleophile, has been tried with reported success in Great Britain,¹⁰ and is consid-

ered there to be the current agent of choice in treatment of acetaminophen poisoning. Penicillamine has also been considered for the treatment of acetaminophen intoxication, but its efficacy has not been proven, and it has been suggested that there may be mutual potentiation of nephrotoxicity between acetaminophen and penicillamine. The effect of N-acetylcysteine (Mucomyst®) on the outcome of acetaminophen overdose has been studied in animals and in a few patients with promising results. It is currently being studied in this country to determine its efficacy in the treatment of acetaminophen intoxication.¹¹

SUMMARY

Patients who have taken an overdose of acetaminophen may appear relatively well when first seen, but then develop evidence of severe liver damage 48 hours or more after the overdose. Acetaminophen plasma levels and half-life data can be of value in predicting the extent of liver damage and the clinical outcome and are especially useful in these early presenting cases. The mechanism of acetaminophen hepatotoxicity

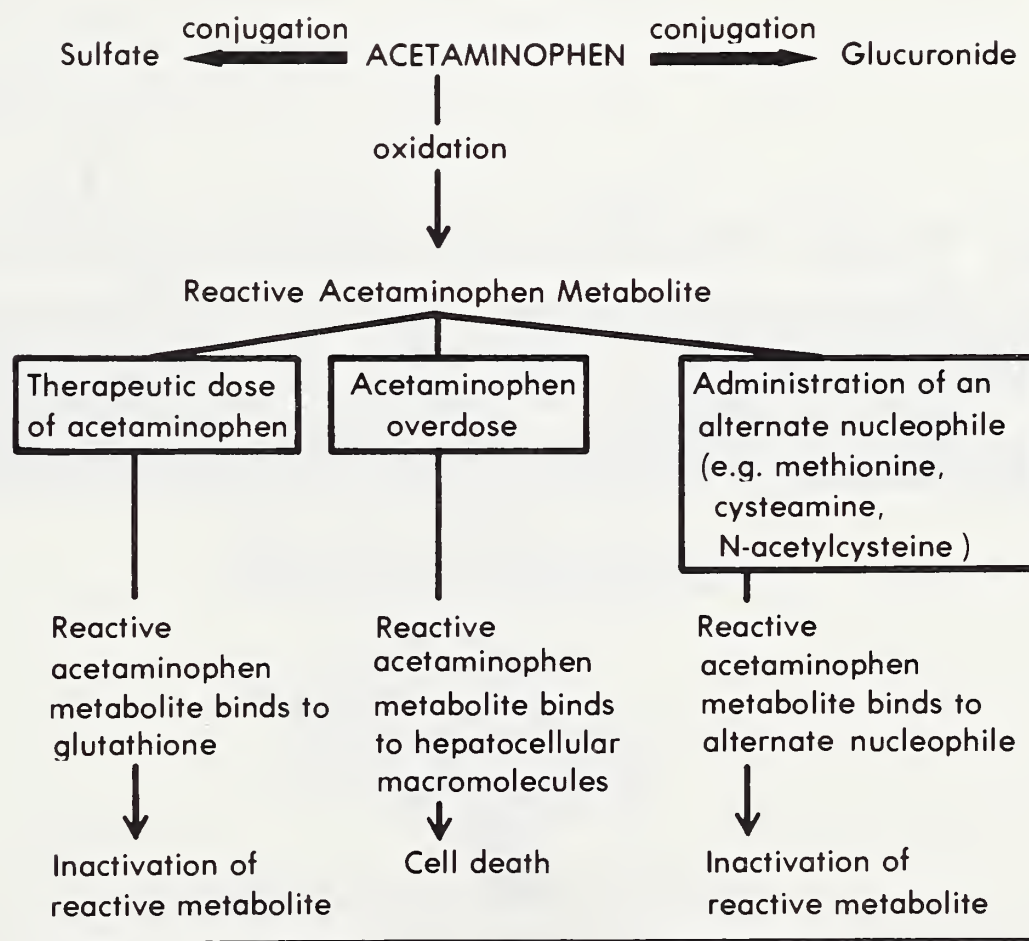


FIG. 6 — Acetaminophen metabolic pathways.

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appears to involve generation of a reactive acetaminophen metabolite which, when present in excessive quantities, causes hepatocellular damage. Investigation into the mechanism of acetaminophen hepatotoxicity has led to the development and clinical evaluation of several specific agents for the treatment of acetaminophen poisoning. □

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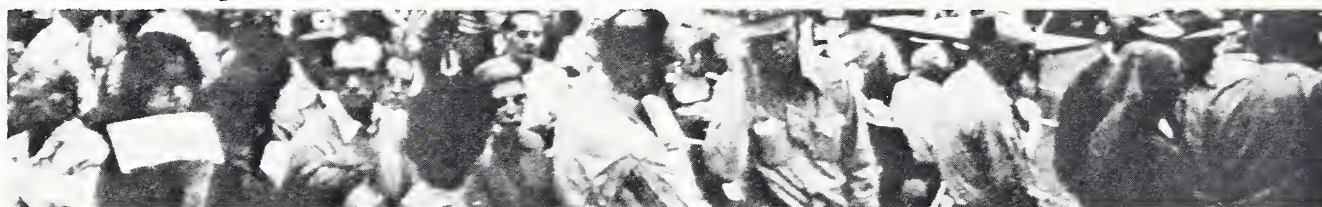
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HISTORY OF PSYCHIATRY AND PSYCHOANALYSIS IN SOUTH CAROLINA*

BENJAMIN C. RIGGS, M.D.**

The early development of psychiatry in South Carolina rested mainly on the philosophy of the isolation and containment of the mentally ill. Until at least the turn of the century, the history of psychiatry in South Carolina essentially consisted of the history of the "lunatic asylum," later the State Hospital.

There was constructed in Charleston sometime around 1712 an almshouse for the poor³ attached to which was a separate facility to house some 20 "lunatics." Still earlier, in 1665, the Lord's Proprietor had authorized a vaguely defined collection of small funds for the care of the poor which apparently accomplished little. The 1712 building, in a tragic accident at the start of the Revolution, was blown up along with most of the inmates.¹

Fifty years elapsed before Samuel Farrow, a determined legislator of national stature, made his try at establishing a "lunatic asylum." The demands of the War of 1812 contributed to his failure. Joined 10 years later by a brilliant attorney named Crafts, a new assault on the legislature was successful in 1822. Due to endless delays and no little graft and politicking, doors did not open in Columbia until 1827, under the guidance of Dr. James Davis.

Curiously, there was only one admission that first year. Perhaps there was vast public resistance to the asylum idea, or perhaps there was unwillingness to admit the existence of crazy people within the family or community. The administrators of the asylum responded by advertising the hospital in papers throughout the South. The result was a slow trickle of patients. It was eight years later that the census finally rose to 148. (There was a population of 5,000 in 1949.)

The second physician to head the institution, Dr. J. W. Parker, appeared in 1837. This redoubtable and hard driving man stayed in this position for 32 years, and remained as consultant for another 13 years. He opened space for Negroes in 1850 and welcomed Dorothea Dix in 1852, but saw all his progress in the humane care of his patients threatened with extinction when Columbia was burned in 1865. Homeless refugees of the burning found shelter in the hospital, which had escaped the burning. They were fed largely out of Dr. Parker's own pocket.

Prior to 1860, South Carolina physicians had been as much influenced as physicians in other regions by the deeply sensitive, humanitarian teachings of Benjamin Rush and his followers in the North — Eli Todd, Amariah Brigham, Samuel Woodward, Thomas Kirkbride, Issac Ray, Pliny Earle and others. It must also be remembered that the Carolina economy was essentially based on agriculture, heavily dependent upon slavery. The impact of the Industrial Revolution was slow in arriving. The War Between the States had a dual effect against this background. The economy was suddenly uprooted and crumbled without time for transition, and what support there had been for the humane treatment of mental illness was severely eroded. The forces of the Industrial Revolution and the more brutal aspects of the burgeoning Northern American Industrial Society also took their toll. An observer noted: "It was a time of incredible personal successes and catastrophic failures . . . hospital personnel were reduced to pawns in the rough and tumble politics of the day. Dirt, filth, overcrowding, and isolation from medicine became the rule. . ."¹ It was against this tendency that state hospital physicians were to battle for the better part of the next century.

The carpetbagger state government in 1869 expressed its gratitude to Dr. Parker by replac-

* This work was presented in panel at the December 1976 meeting of The American Academy of Psychoanalysis.

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ing him with Dr. J. F. Ensor. It is to the great credit of both men that Dr. Parker stayed on as a visiting consultant and that the two worked successfully together.

The main building was gradually completed by successive additions between 1858 and 1871. It is described as "the Kirkbride type," which refers to the fact that its brilliant architect, Robert Mills, learned much from Dr. Kirkbride in Philadelphia. Further additions were made every few years until 1937. All along, funds were somehow obtained more easily for building than for actual patient care. One can speculate that this reflects the philosophy of isolation which the community mental health movement has sought to oppose. This is to the effect that maintenance of a psychiatric patient in an enclosed and labeled space is somehow curative by definition. In any case, one is forced to take note of the statement by C. C. Odom, superintendent in 1949, that "the fountainhead of psychiatry in South Carolina is, and should be, the State Hospital."³ I hope we have begun to undo this unhappy legend.

In 1876, the South Carolina government stabilized around a coalition of Democrats and Republicans and funds became more easily available. During Dr. Ensor's tenure, there was a report published in 1871 which described the privations of the period, and stated that all support had depended upon "the charitable indulgence of the merchants of this city or on the personal credit of the Superintendent."² The later improved finances of the state, however, never overcame fully the underlying philosophy that the state hospital should as nearly as possible be self-supporting.

The significance of all this is twofold. There is a widespread myth in many areas that state mental hospitals — and even some private ones — have been constructed well removed from urban centers in order to keep crazy people at a safe — perhaps non-infective — distance from the susceptible "sane" of the city. While there may have been some truth in it, the reports of the legislature of 1879 to 1883 repeatedly asked for the purchase of large tracts of land. The reason given was consistently to the effect that large areas of farm land were needed for self-support. Whether or not this represented a healthy form of "occupational therapy" I am not sure, but it certainly gave rise to what was later euphemistically called "industrial therapy," meaning the support and

maintenance of the hospital without pay by patients. Only recently has this abridgement of human rights been legally corrected but at the expected price of exaggerated response: "Now patients sit idle feeling even more useless and abandoned than before."

Turning to a more clinical aspect, it is worthy of note that as early as 1828, Simmons⁴ in his observations on mental alienation gives as fine and thorough a description of the symptoms and behaviors found in the "manias" (all psychoses in those days) as can be found in modern literature.

Returning to the post-war era, it might be of interest to quote again from Dr. Ensor in 1871 with respect to patient statistics and what were considered the leading "causes" of the various manias. In that year, there was a hospital census of 370 patients — half male, half female. There were 43 discharges and 32 deaths. The leading cause of death was given as diarrhea, about which we shall have more to say. But of the discharges, 30 were described as "cured," 10 as "improved" and 3 as "unimproved." What the criteria were, I do not know, but it looks impressive during an age when the unconscious was not explored and mental mechanisms were matters of speculation. Of equal interest is the list of supposed "causes" of insanity. Over twenty are given, of which the first ten should do as a sample:

- Heredity
- Epilepsy
- Consumption
- Intemperance
- Domestic Trouble
- Child Birth
- Congenital
- Masturbation
- Typhoid Fever
- Meningitis

The last two on the list are "bad health" and "unknown." For some reason, a far shorter list of causes appeared in 1878 — the three leading ones being Religious Excitement, Intemperance and, of course, masturbation. Of 118 discharges that year, 40 were classed as "recovered." Again, one must be impressed: at least something had happened. But perhaps the glowing accounts of the wonderful building program in official histories should be modified to include their deteriorating human ambience. If the truth be known, inmates would, I am sure, find ways of vastly improving their behavior merely to get out

of the miserable place. Dr. Trezevant⁶ who had a brief tenure as superintendent was, if nothing else, dramatic in his appeals to the Governor as early as 1854 describing those first buildings in great detail and with some horror. There is little evidence that subsequent additions during the rest of the century changed much.

All this is at great variance with the sensitivity, devotion, and professional standards shown by many of the physicians serving as psychiatrists ("alienists" in the 19th Century), from the earliest days of Dr. Davis in 1828, called the first psychiatrist in South Carolina. Dr. Trezevant⁶ spends one letter, for example, detailing the great importance of dining facilities. He quotes a certain Winslow: "The mere nutrition of the helpless who cannot express their wants or represent the most flagrant injustice and privation (120 years ahead of his time) demands all the care that humanity can suggest; but it is ordained that man should be capable of associating enjoyments with the mere partaking of food which communicate satisfaction to the mind, and where the subject is the restoration of mental tranquility, attention to the diet and its preparation and serving rank among remedial measures acting upon the mind as well as the body. All habitual physical discomfort is opposed to mental recovery."

Dr. Ensor continued as superintendent until 1877. For the next 15 years, the hospital population gradually rose but there was little change in the basic structures or functions. 1891 marked the arrival of Dr. James Babcock who by 1895 had instituted sweeping reforms in what was still called the lunatic asylum, attempting to follow the example of McLean in Massachusetts. The name was changed in 1895 to the "State Hospital for the Insane," in keeping with the concept of the hospital rather than the custodial approach. While in the long run he was no more successful in achieving a true, active treatment program than hospital superintendents elsewhere, it was a beginning much to his credit, but not to that of the legislature which failed to support it.

Diarrhea, a prime cause of death in the asylum, was perhaps the most serious symptom of one of the prime causes of organic psychosis, namely Pellagra. Extensively described, it was never clearly distinguished as a syndrome until 1907. Babcock was instrumental in the study of this illness calling the first large-scale conference on the subject in 1910.⁵ It was not until 1929 that

a statewide program of brewer's yeast distribution was begun, and even in 1931 there were 637 deaths reported, and in 1961, 72.

It is not clear exactly when psychiatry began to move out of the hospital setting, but it is certain that the impact of Freud, Adler, Jung and those other leaders into the realm of the unconscious was very slow in being felt. It is not at all clear, for example, what was meant by "therapy" other than the physical modes during most of the first half of this century. A private sanitarium was founded in 1914 (The Waverly), and it appears that a good many outpatient contacts were made, but we are not sure of their nature. In 1921, the state established a Mental Hygiene Department with Dr. Fred Williams, at one time President of the American Psychiatric Association, serving as superintendent. In 1923, the first outpatient clinics were established. In 1927, the South Carolina Society for Mental Hygiene was founded — later to become the Mental Health Association. However, significant influence of psychoanalytic thinking on psychiatric care in South Carolina was slow in coming.

The Mental Health Act of 1946 did not bear fruit in the State Department until 1961 with the passage of the South Carolina Mental Health Services Act and the beginnings of community mental health centers in Columbia and Charleston. During this same period, Dr. William S. Hall organized the South Carolina District Branch of the American Psychiatric Association, and became Commissioner of the Department of Mental Health in 1964. The impact of psychopharmacology was, of course, dramatic. Drug therapy was a major factor in cutting the population of the State Hospital from about 5,000 in 1949 to 1,650 at present.

Development of the educational and psychodynamic aspects of psychiatry in South Carolina was slow.

While the Medical College of South Carolina was founded in 1824, there was essentially no recognition of psychiatry as either a specialty or a matter of any great importance until 1946, with the establishment of a division within the Department of Medicine under the Professorship of Olin Chamberlain. Two more psychiatrists joined in 1947 and 1948, and in 1952, Jennings Cleckly succeeded Chamberlain to become the first chairman of a separate department in 1956. One could date the beginnings of teaching of

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serious dimensions at 1954 with the approval of a three year resident program. The College had established a clinic in 1948 which had 570 applicants its first year.

A second educational effort began with the establishment of the Hall Institute in 1965, attached to the State Hospital, but chartered specifically for education and research. A resident program was approved there in 1968.

With the arrival in 1968 of Layton McCurdy as Chairman at the Medical College in Charleston (soon to become the Medical University), a rapid expansion of teaching began and the first inclusion was made of Psychoanalysis as a core body of theoretical and technical knowledge.

In the area of private practice, an outstanding graduate of the Jung Institute in San Francisco, the late Elizabeth Ayer, arrived in 1954 to be the first analyst in the state. Norton L. Williams, with experience in the Horney School in New York, came that same year. Robert McCully, another Jungian analyst of prodigious scholarly repute, arrived full-time at the Medical University in 1969, followed by the only two classically trained analysts, Martin Keeler and the author, in 1970.

To make a comparison, The Boston Psychopathic Hospital (a part of Harvard University) was engaged in teaching and intensive outpatient care from about 1915 on, and felt the influence of psychoanalysis well before the actual founding of the Boston Institute in 1933. The serious teaching of psychiatry in South Carolina began almost fifty years later. There are currently, if we assume the broad definition of psychoanalysis, just four analysts within the State of South Carolina and one part-time visitor.

Does this represent an anti-analytic atmosphere? I rather think not. The Department at the University has grown pluralistically around a core of applied psychoanalysis with a full-time faculty of 49 — half MD, half Ph.D., etc., and a philosophy of complementarity between all the

various approaches to the behavioral sciences. The residents cry out for still more basic training in modern psychoanalytic concepts. There are pockets of resistance — to be sure — among some of the old guard in medicine and surgery, and some of the psychiatrists who depend too much upon easy money from shock machines and drugs, but there is spreading interest in dynamic human understanding.

It is rather that for many historical reasons, in the South, referring at the moment to South Carolina, there are psychologically unsophisticated, undeveloped areas, ripe for the advances they seem to be inviting. There are those who decry the excursions of analysis beyond the boundaries rigidly misinterpreted from Freud's work into fields of psychiatric education and other applications which vary or daringly develop old theories, and call these dangerous "dilutions." It is precisely the new educational atmosphere that we enjoy, relatively unburdened by encrusted pseudo-theology, that may well serve as the most fertile ground for the survival by challenge of an endangered species, the psychoanalyst. □

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The author expresses special gratitude to Dr. Joseph I. Waring, Curator, of the Waring Historical Library at the Medical University, for his assistance in securing source material.

CONTINUING MEDICAL EDUCATION — PAST, PRESENT AND POTENTIALS FOR THE FUTURE

GERALD E. COSTELLO, Ed.D.*

For persons functioning in the health care professions, the notion of continuing education becomes an unwritten fact of life. The so called "knowledge explosion" creates many problems for the undergraduate medical student, but for the busy practicing physician, the knowledge explosion is overwhelming. It becomes imperative that attempts at providing continuing medical education be well-planned, well-directed, and based upon topics that are both relevant and meaningful to the learner.

Continuing medical education is still in the primitive stages of development. Many physicians and medical authors have assumed very critical positions against the continuing medical education programs which are currently being conducted.^{1, 2, 3} This posture arouses concern that perhaps in no field of study is continuing education more crucial than in medicine, and yet, the educational attempts being made are viewed as having little redeemable worth. Assuming that such criticisms are accurate, one wonders what the ultimate future of continuing medical education will be if it persists in the same manner.

In assessing contemporary continuing medical education programs for the express purpose of attempting to more clearly comprehend the nature of the criticisms, a number of areas and issues are highlighted as points of concern. They are as follows: Firstly, a major criticism of continuing medical education programs seems to be focused at their having as their sole purpose the transmittal of cognitive information. The objection does not stem from the philosophical issue concerning the need for knowledge, but from the techniques utilized in disseminating the information and the philosophies of learning which support the methodologies. Knowledge is viewed as a "cure-all" and the practitioners are viewed as

passive unresponsive recipients in the process. Such a learning atmosphere often breeds physician apathy, boredom, and general disdain towards this type of educational effort.¹

Secondly, continuing medical education programs are often observed as very academic and technical subject matter presentations that are made by specialists who often lose sight of the factor of applicability. Medical education professionals who function in sophisticated, well-equipped hospital settings have been criticized for their lack of sensitivity in relating to physicians in smaller, lesser equipped facilities.

Thirdly, continuing medical education programs tend to exclude clientele from involvement in the need determination process. This lack of input many times leads to programs that do not meet the real needs of the practicing physician and consequently can be considered by many as neither relevant nor meaningful medical education.

Fourthly, the reported successes of continuing medical education programs seems to also be an area of concern. Weak evaluative procedures such as "warm-seat" indices, scores on tests of cognition which are given immediately following an education session and the educational planners' perceptions about the "obvious" value of a topic create conditions where persons become skeptical and critical of the real success of a program.

Lastly, criticism seems to surround the belief that continuing medical education programs deal with general, cure-all topics and do not focus on real medical needs or deficiencies. It is within this context that we can differentiate between quantitative and qualitative continuing medical education. Quantitative continuing medical education tends to deal with broad, general medical topics perceived as needs by educational planners, whereas, qualitative continuing medical education is based upon the needs or deficiencies which have been identified either by the prac-

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tioners themselves or through some type of medical audit procedure.

Continuing medical education programs based upon a need determination process have reportedly proven to be quite successful. An experimental study to establish the credibility and effectiveness of qualitative continuing medical education was undertaken in Idaho. Summarization of this study indicated that continuing medical education, when based upon detected medical needs and deficiencies, becomes more realistic and valuable to the learner. The audit procedure, when performed in non-threatening, non-judgmental atmosphere and with support of the medical profession, can be an extremely valuable educational tool. The follow-up audits which were conducted indicated that most deficiencies detected previously were either eliminated or significantly reduced. This study seems to support very strongly the contention that continuing medical education which is based upon established needs or deficiencies does work.⁴

Within the health care delivery system in South Carolina, an agency already exists which could easily become the focal point for establishing relevant and meaningful continuing medical education — based upon medical needs or deficiencies. This organization, the South Carolina Medical Care Foundation, a Professional Standards Review Organization, appears to have all the ingredients for directing and coordinating worthwhile continuing medical education. The components refer to: (1) having federal law behind the establishment of a data base; (2) input from almost every hospital in the state through the medical care evaluation studies; (3) local, regional or state committees setting appropriate standards of health care for purposes of validating the quality of care being rendered; and (4) ongoing reviews which document qualitatively the level of care being rendered.⁵

In an attempt to demonstrate how the medical care evaluation studies, which are retrospective studies done in a specified medical area, over a particular length of time with a particular patient population, can be useful in establishing qualitative continuing medical education, the following medical examples are offered with the most often documented deficiencies indicated:

<i>Medical Topic</i>	<i>Deficiencies</i>
(1) Appendectomy	Excessive removal of appendices

	when tests were negative Wound infection Lack of documentation of wound healing at discharge
(2) Lobar Pneumonia	Lack of Sputum Cultures Lack of Chest X-rays (discharge) No indication that patient is clinically improving Antibiotic therapy in absence of bacterial investigation
(3) Term Pregnancy with Labor and Vaginal Delivery	Blood types and RH factor not noted in charts. Unjustified induction of labor and delivery Lack of documentation of clean, healing episiotomy
(4) Diabetes Mellitus	Lack of documentation by M.D. of improvement in control of diabetes Lack of disease counseling Lack of instruction in diet, urine testing, foot care, insulin administration
(5) Hysterectomy	Lack of positive tissue reports Lack of documentation of pap smear or documentation of smear within last 6 months. Wound infection Lack of evidence of biopsy with Class III and IV Pap Test

As one observes the medical deficiencies which have been documented, it becomes obvious that many opportunities do exist for establishing quality continuing medical education. An example of how medical care evaluation study data has been utilized in establishing continuing medical education is in relation to a recent statewide study completed on acute myocardial infarctions. In this review, the criteria utilized in determining the quality of care rendered was established by the American College of Cardiology and modified by the Health Care Guidelines and Education Committee of the South Carolina Medical Care Foundation. It was determined through the study that the following deficiencies existed to a greater or lesser extent: (1) Lack of availability of electronic monitoring, (2) Deficiencies in maintaining intravenous infusion lines, (3) Inaccurate admitting diagnoses, (4) Cases where the final diagnosis was reported in error; i.e., reported as A.M.I. when patient actually had G.I. bleeding, (5) Lack of effective coronary care unit equipment and trained nursing personnel, and (6) Mortality data in smaller

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institutions which was unacceptably high (40% or more).

The results of the study were deemed by the medical profession to be generally very valuable and necessary as a basis for continuing medical education. As a direct result of the study, a number of South Carolina hospitals initiated programs of continuing medical education directed towards alleviating the A.M.I. deficiencies noted. There was also a program given at the annual statewide medical association meeting on acute myocardial infarction which was in response to the information which was established through the audit.

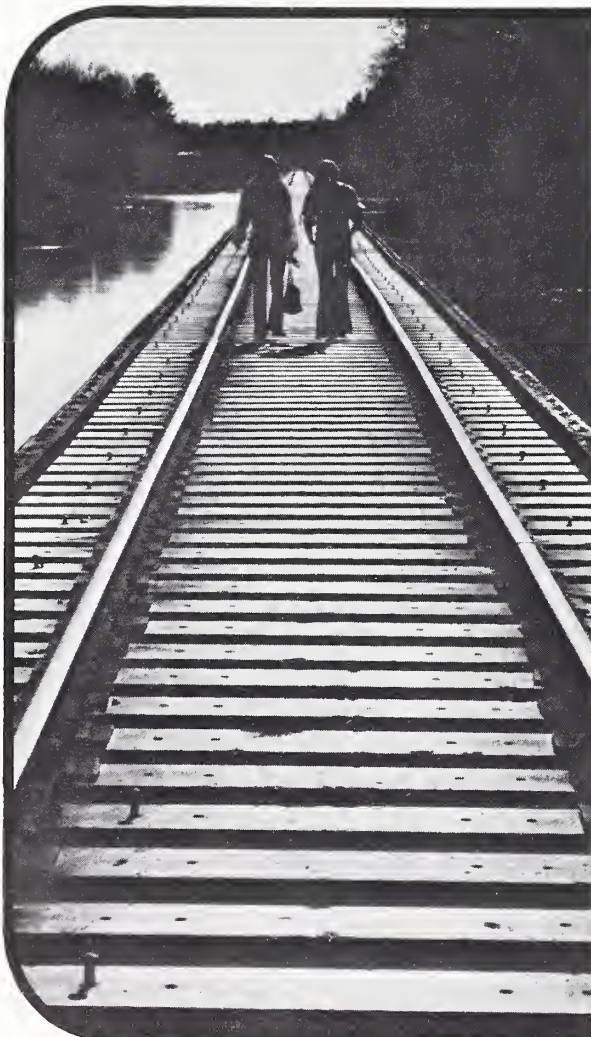
The South Carolina Medical Care Foundation, working closely with the medical schools, area health education centers, local hospitals or other health agencies which seem to be logical providers of continuing medical education, could create strong, comprehensive continuing medical education programs of professional relevance and worth. The extension of Professional Standards Review Organization activities into the educational arena seems to be a logical progression and follow-up to the detection of health care deficien-

cies which occur through normal process reviews.

Qualitative continuing medical education must be established for the maintenance of quality patient care. Physicians need systematic appraisal of their deficiencies and must be offered opportunities to eliminate them. This process can occur within a system where realistic standards of care are established. Medical care must be evaluated using valid evaluative procedures and with coordination of various components of the medical community combining talents to provide relevant, worthwhile, meaningful programs of continuing medical education. □

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CARBON DIOXIDE LASER THERAPY IN OTOLARYNGOLOGY*

F. JOHNSON PUTNEY, M.D.
WARREN Y. ADKINS, M.D.

Carbon dioxide laser surgery is being used in Otolaryngology to treat various lesions, chiefly involving the larynx. The lack of trauma, the degree of precision and the speed of healing make this method of treatment superior to conventional techniques in the treatment of certain conditions in the larynx, notably papilloma, polypoid degeneration and keratosis.^{1, 2} Lesions in all parts of the larynx can be treated if they can be exposed satisfactorily with a suspension laryngoscope. Retraction of the vocal cord gives access to an area as far as 5-10 mm below the vocal cord. It has also been applied to lesions of the anterior nose, oral cavity, pharynx and nasopharynx. It is commonly employed as a direct beam or, with stainless steel mirrors, can be reflected into the nasopharynx or pharynx to precisely focus on the lesion. Biopsy is routinely performed before removal of a lesion. This can be done either with the conventional forceps or by the laser.

The wave length of the CO₂ laser beam is in the invisible infrared range, and its effect on tissue is thermal. The energy produced is absorbed by all biological tissue, and the amount of tissue destruction is in part proportional to its water content. The beam that is delivered from the machine has an initial diameter of 10 mm and can be focused down to spots of approximately 2 mm. The 400 mm focal length lens is used on the microscope to allow room for manipulation of instruments between the microscope and the target area. Commonly a power setting of 15 watts is combined with a time exposure of $\frac{1}{5}$ of a second for precise microsurgery. For gross dissection 15-25 watts of power may be used almost continuously. In contrast to pulsed lasers, the continuous wave CO₂ laser has comparatively little impact shock effect and has a minimal ten-

dency to scatter into soft tissue. No instrument is actually in contact with tissue, thus eliminating a major obstruction to the operator's view.

Laser surgery is associated with minimal morbidity and scar formation with excellent healing and residual function. The wounds tend to heal by epithelial migration across the defect rather than by scar formation and contracture. The minimal postoperative edema is probably due to the sharp line of demarcation between the area of vaporization and the remaining tissue.

Due to the remote possibility that the laser beam could impinge on a flat metal surface and be reflected, operating room personnel wear plastic or ordinary glasses to protect the cornea. The patient's eyes are taped.

Anesthesia is supplied via a rubber endotracheal tube which is covered by a thin coating of aluminum tape to protect the tube from accidental laser burn. Since the beam will not penetrate moisture, wet cotton pledgets are also placed over the tracheal portion of the tube to prevent puncture of the balloon.

Laser surgery has its limitations in that the target must be clearly seen at all times unless viewed in a stainless steel mirror for treatment with a reflected beam. Steam and smoke produced by the laser must be cleared and the operative field dry to present an unobstructed view.

We have employed the CO₂ laser in selected cases and by its precision, absence of bleeding, control of the depth and area of destruction and reduction of tissue reaction have improved our endolaryngeal surgery. □

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Editorials

YOUR DECISION — ACTION OR APATHY IN 1978

One of the most important election years to affect the medical profession will be one year from now. Those elected to Congress will address such issues as National Health Insurance and changes in the Medicare and Medicaid programs. At the State House the next Governor and Lt. Governor and the new returning legislators will probably consider legislation similar to that introduced this year on topics such as medical liability, generic substitution, "living wills," the definition of death, medical education, surgery, and the future roles and practices of health care providers, including physicians.

The physician's practice is becoming more affected by governing bodies, governing controls which have decided that they have the responsibility of determining medical care. The door to the political process is not closed. It is open and you have the opportunity to be heard through SOCPAC, the South Carolina Political Action Committee, a campaign organization formed by the medical profession to represent physicians.

SOCPAC is ready to help if you decide you want to be heard in determining the future of your practice and the care of your patients. But you must decide today. Even though the general elections are a year away, the gears are turning, candidates are announcing for office, issues are being discussed and money is being raised to promote successful primary and general election campaigns.

Among the slate of candidates for the U. S. Senate and House, for Governor, for Lt. Governor and for the State Legislature are electable candidates who share our views and who will work effectively with us for the best interests of the medical profession. Many of these are running against formidable opponents. With your support, SOCPAC can be a determining factor in the outcome of the elections.

SOCPAC supports candidates through contributions, physician campaign committees and sometimes in cooperation with national PAC's. SOCPAC has been successful in helping to elect

almost three-fourths of the candidates it has supported. This percentage is one of the highest among PAC's in the state. In comparison with other medical PAC's throughout the U. S., SOCPAC ranked high in several categories of activity. SOCPAC has operated with the dues support of less than 600 of the state's 3,000 physicians. Considering its previous success and the prospective membership, SOCPAC's potential seems unlimited.

SOCPAC needs your support in serving as a unified voice of medicine. SOCPAC is constructed to help you but without your support it cannot continue to be as effective as it has been.

SOCPAC is your organization. It is your decision. Cast your vote for SOCPAC by sending in your dues today.

KENNETH N. OWENS, M.D., *Chairman*
South Carolina Political
Action Committee

ON COMMITTEES AND EDITORIALS

In previous issues of *The Journal*, we have noted the long hours of dedicated labor put in by members of the SCMA council. It seems appropriate, also, to give credit to the *numerous* other physicians who devote their time to the functions of the many, necessary committees of the association.

There are now 36 committees, with 337 members. The reviewing of committee membership has required no small amount of the council's time at recent meetings; one member probably spoke for all when he mumbled the following: "Those physicians who don't belong to the SCMA are getting a free ride; just imagine the amount of work which went into the recent changes in malpractice legislation, alone!"

Committee work is time-consuming and, by its very nature, often inefficient. A useful analysis of the functioning of committees can be gleaned from a recent essay by Dr. Lewis Thomas:

"... when committees gather, each member is necessarily an actor, uncontrollably acting out the part of himself, reading the lines that identify him, asserting his identity. This takes quite a lot of time and energy, and while it is going on, there is little chance of anything else getting done. . . . If it were not for such compulsive behavior by the individuals, committees would be a marvelous invention for getting collective thinking done. But there it is. We are designed, coded it seems, to place the highest priority on being individuals, and we must do this first, at whatever cost, even if it means disability for the group."¹

Thomas suggests an alternative to meetings: the *Delphi technic*. In the Delphi technic, committees function mainly by mail; questionnaires are circulated and re-circulated, each member expressing his opinion *in writing*. Thomas notes

that although this method sounds "simple, almost silly," it works remarkably well: three cycles of the questionnaire usually provide a working consensus of opinion. Some of our committees already use this principle, in part, and in a situation in which committee members from different parts of the state must get to know each other, we would certainly not advocate the Delphi technic for all our functions. But the concept is interesting.

Turning now to the other aspect of our title — *editorials* — we suggest that the editorial page, like the Delphi questionnaire, should provide a forum for *thoughtful listening* to each other. No topics are more valid than those which concern chairmen and members of our committees. We therefore welcome their potential guest editorials; the editorial by Dr. Owens (above) provides an example. Ideas for potential guest editorials should be communicated directly to the editor.

We reiterate: this is *your* Journal.

CSB

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"FOR THE MILLIONS WHO SHOULD NOT TAKE ASPIRIN . . ."

The catch-phrase "safe as aspirin" enjoys wide usage in our reassurances to patients when prescribing drugs with high therapeutic indices. Recent years have taught us, however, that aspirin causes clinically-important damage to platelets. We now give due warnings to patients with bleeding problems or with proneness to peptic ulceration. Acetaminophen has been popularized as an analgesic and antipyretic for these and certain other settings. But before we begin saying "safe as acetaminophen" to our patients, let us recall the repeated lesson from the history of pharmacy that *years* may elapse before a drug's true toxicity becomes appreciated. History now seems to be catching up with acetaminophen.

Synthesized exactly a century ago at the Johns Hopkins University, acetaminophen is now available in our country under some 264 brand names.¹ The paper by Sawyer and colleagues in this issue of the *Journal* emphasizes a syndrome of acetaminophen overdosage which is well-recognized in Europe and is now being publicized here. An overdose of 15 or more grams of

acetaminophen to adults can cause serious liver damage. This toxicity is made treacherous by the frequent delayed onset of clinically-apparent liver damage, which may begin 48 hours or more after ingestion. Acetaminophen overdosage seems to be less manageable than aspirin overdosage. Hemodialysis and peritoneal dialysis are ineffective.

The careful reader of the article by Sawyer and colleagues will glean two concepts which are relatively new. First, estimation of plasma half-life of the drug, based on *timed* measurement of two or more blood levels, may provide a better estimation of prognosis than measurement of a single blood level, especially when the exact time of ingestion is unknown. Secondly, understanding the molecular basis of toxicity may provide the insight needed to design specific therapeutic programs. Hepatic glutathione protects tissues against acetaminophen damage, but the supply of glutathione is exhausted during overdose. Knowledge of molecular pharmacology resulted in the demonstration that both methionine and

cysteamine are effective therapy for acetaminophen poisoning in both animals and man.

A final caveat concerns the potential for acetaminophen to cause renal papillary necrosis, given the fact that this drug is a metabolite of *phenacetin* which is well-known to produce this lesion. To date, only three well-documented cases of renal papillary necrosis associated primarily with prolonged acetaminophen use have been reported.¹ But it is clear that the definitive description of the "analgesic abuse syndrome" remains to be written.

CSB

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LETTERS TO THE EDITOR

To the Editor:

I would be grateful if you would publish the following statement as a letter to the Editor:

SCMA/SCNA JOINT PRACTICE COMMISSION STATEMENT ON USE OF PRESIGNED PRESCRIPTIONS

At a recent meeting of the SCMA/SCNA Joint Practice Commission held September 8, 1977, in Columbia, it became obvious that certain practices commonly employed by physicians and nurse practitioners working together in this state are in violation of the Pharmacy Law and Medical Practice Act.

A previously accepted procedure has been for the physician to develop a medical protocol, including a list of all medications, in agreement with the nurse practitioner. The nurse practitioner would then use presigned prescriptions, from that list of medications in the protocol, at a later date when managing patient care.

(continued on page 502)

BRIEF SUMMARY OF PRESCRIBING INFORMATION

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Actions. Antiminth (pyrantel pamoate) has demonstrated anthelmintic activity against *Enterobius vermicularis* (pinworm) and *Ascaris lumbricoides* (roundworm). The anthelmintic action is probably due to the neuromuscular-blocking property of the drug.

Antiminth is partially absorbed after an oral dose. Plasma levels of unchanged drug are low. Peak levels (0.05-0.13 $\mu\text{g/ml}$) are reached in 1-3 hours. Quantities greater than 50% of administered drug are excreted in feces as the unchanged form, whereas only 7% or less of the dose is found in urine as the unchanged form of the drug and its metabolites.

Indications. For the treatment of ascariasis (roundworm infection) and enterobiasis (pinworm infection).

Warnings. *Usage in Pregnancy:* Reproduction studies have been performed in animals and there was no evidence of propensity for harm to the fetus. The relevance to the human is not known.

There is no experience in pregnant women who have received this drug.

The drug has not been extensively studied in children under two years; therefore, in the treatment of children under the age of two years, the relative benefit/risk should be considered.

Precautions: Minor transient elevations of SGOT have occurred in a small percentage of patients. Therefore, this drug should be used with caution in patients with preexisting liver dysfunction.

Adverse Reactions. The most frequently encountered adverse reactions are related to the gastrointestinal system.

Gastrointestinal and hepatic reactions: anorexia, nausea, vomiting, gastralgia, abdominal cramps, diarrhea and tenesmus, transient elevation of SGOT.

CNS reactions: headache, dizziness, drowsiness, and insomnia. Skin reactions: rashes.

Dosage and Administration. *Children and Adults:* Antiminth Oral Suspension (50 mg of pyrantel base/ml) should be administered in a single dose of 11 mg of pyrantel base per kg of body weight (or 5 mg/lb.); maximum total dose 1 gram. This corresponds to a simplified dosage regimen of 1 ml of Antiminth per 10 lb. of body weight. (One teaspoonful=5 ml.)

Antiminth (pyrantel pamoate) Oral Suspension may be administered without regard to ingestion of food or time of day, and purging is not necessary prior to, during, or after therapy. It may be taken with milk or fruit juices.

How Supplied. Antiminth Oral Suspension is available as a pleasant tasting caramel-flavored suspension which contains the equivalent of 50 mg pyrantel base per ml, supplied in 60 ml bottles and Unitcups[™] of 5 ml in packages of 12.

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In order that nurse practitioners and physicians may continue to provide high quality patient care using protocols, the JPC has asked the Board of Pharmacy Examiners to amend the Pharmacy Practice Act (Section 56-1313) to include the wording:

or nurse practitioners functioning under specific written protocol as defined by the Rules and Regulations applying to the 1975 Laws Governing Nursing in South Carolina.

If this is done, a prescription written by a nurse practitioner for a medication included in the protocol could be legally filled by a pharmacist.

However, at this time, the JPC urges practitioners in this state to revise their practice procedures, where necessary, to bring them into compliance with present law.

Michael C. Watson, M.D.
Chairman

To the Editor:

I read with interest your editorial on "The New Nurse and Territorial Rights." Please be assured that it has never been the intent of the Board of Nursing, through the 1975 revisions of the Laws Governing Nursing, to "... in part, replace the physician," but to provide needed health services to a public who either are not receiving services or are receiving limited services.

Neither does the Nurse Practitioner or Clinical Nurse Specialist intend to "compete with the physician by lower overhead or free advertisement." The physician can use the same marketing techniques as the nurse.

To me the question is not territorial rights, but getting the job of improved health for our citizens accomplished. I firmly believe the physicians and nurses see this as a partnership with the patient.

(Mrs.) Ruth Q. Seigler, R.N.
Executive Director,
State Board of Nursing

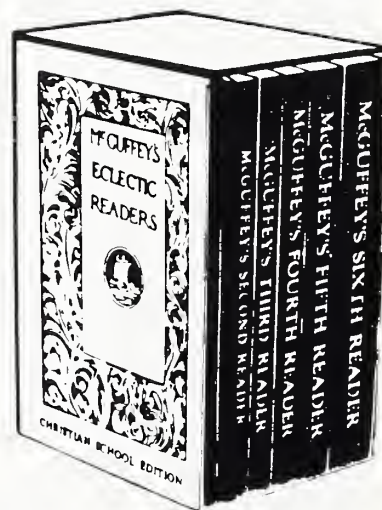
IN RESPONSE:

We share these sentiments; the purpose of the editorial was to attempt a balanced viewpoint.

— The Editor

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AUXILIARY PRESIDENT'S PAGE

This month's article is written by our State AMA-ERF Chairman, Elise Cain, President.

AMA-ERF

As I begin my year as AMA-ERF chairman for South Carolina, I am especially pleased to have this opportunity to report to you on the Foundation's progress during the past year, since your efforts were the key to that success.

During 1976, almost 6,000 students, interns and residents borrowed \$7.8 million through AMA-ERF's guaranteed loan program. The medical school program already has distributed \$1,180,000 which was collected in 1976.

How does this affect our state? The grants from the funds for approved medical schools contributed during the calendar year of 1976 total \$14,028.82. The largest amount of the grants have been earmarked by the persons making the contributions. Usually this is an alumnus of the school or the spouse of an alumnus. The funds going to the medical schools may be used by the school to best suit their needs.

Also during the year, funds are earmarked by donors to the Loan Guarantee Fund of AMA-ERF. In 1976, loans were made to 71 medical students and 6 interns and residents in South Carolina in the amount of \$95,900. This gives you an idea of the benefits South Carolina is receiving through AMA-ERF.

Students are turning to AMA-ERF Loan Fund because support from state and federal scholarships and loan programs is dwindling.

When a student borrows money as part of this program, he is actually borrowing bank money at Commercial Group Rate interest on a secured loan arranged by AMA-ERF. Thus it is possible for a bank to lend \$12.50 for each \$1.00 held in the guarantee fund.

A freshman medical student who borrows need not repay any of the principle until he or she completes training, which in most cases is seven years. But responsibility for the annual interest payments on the loan, approximately 8%, is not deferred. Upon entering practice, the borrower's loans are consolidated into one payment note. Payments may be arranged for a maximum of 10 years.

A maximum of \$1,500 may be borrowed in any 12 month period, up to a total of \$10,000 over seven years.

The AMA has turned the fund raising over to the AMA auxiliary. Through the sale of "In Memoriam," "In Honor of," and "Thank you" cards as well as Christmas cards and merchandise, the auxiliaries contribute to the ERF.

You may send your checks directly to the American Medical Association office, 535 N. Dearborn Street, Chicago, Illinois, or contact your County Medical Auxiliary. Checks should be made out to the AMA-ERF Auxiliary Fund. Your gift is tax exempt under classification 501-C3.

In the end, the real winners will be our medical schools and medical students and residents. The future of American medicine may be determined by how well we play the game.

Kiki Sanford
State AMA-ERF Chairman

President's Pages



WHERE ARE WE TODAY IN PROFESSIONAL LIABILITY? WHERE SHOULD WE BE GOING?

For the past two years, physicians and other health care providers have been able to purchase professional liability coverage from the Joint Underwriters Association. As we all know, the JUA was created by an Act of the State Legislature and is managed by the South Carolina Insurance Department. All casualty companies licensed to do business in South Carolina must participate in underwriting the program.

Since July 1, our umbrella or excess coverage, over \$100,000 per incident, is available through another state program created by the legislature. This is called the Patients' Compensation Fund. No underwriters participate in this program. A premium pool of approximately four million dollars will be developed, and the program will act as its own underwriter. The Fund is being administered by the South Carolina Medical Association.

Our state legislature has been responsive not only in creating the two state programs but in reducing our Statute of Limitations from six to three years. During the 1977 session of the General Assembly, nine bills supported by SCMA, including five medical liability bills, were enacted into law. In addition to the Statute of Limitations Bill, these medical liability bills are as follows:

S. 151 — Increased the Joint Underwriting Association Board to include three members of SCMA, and enabled the Patients' Compensation Fund to begin operation.

S. 511 — Prohibits implementation of the JUA's recent 100% assessment of all physicians and any future assessment until July 1, 1978.

S. 106 — Extends expiration date of the JUA from December 31, 1977 until December 31, 1978.

H. 3006 — Directs the Legislative Insurance Law Study Committee to review implementation of all provisions of the Act establishing the JUA.

All of these developments do indeed give us a fortunate situation at this time. It is becoming evident, however, that this situation could be temporary. It is also becoming evident that changes could be made in our current programs which would improve the professional liability climate in South Carolina and stabilize the cost of this type of insurance.

With reference to the question of our current situation being temporary, our legal counsel, after studying the current JUA law, has advised us that in his opinion the program was intended to be a temporary measure and was not intended to provide a market in South Carolina for a period of any longer than four to five years. The reason is that this type of program compels the underwriting carriers to participate, and extension of it over a long period of time could violate the rights of the individual carrier.

In addition, an examination of the financial status of the JUA and also an examination of its administrative policies leads many physicians to believe that major improvements could be made in these areas which would substantially reduce the cost of coverage.

First, in computing our premium rates, the JUA actuaries have relied on national utilization and claim figures because they believe not enough South Carolina statistics are available to give them a broad enough data base for their computations. By using national figures, actuaries and the JUA Board members continue to tell us that the JUA is under-funded and that additional premium increases may be necessary. This conclusion is somewhat hard to accept for the lay person in light of the fact that almost nine million dollars in premiums have been collected by the JUA since its inception, and the comparatively small amount of approximately \$250,000 has been paid out in actual claims payments. Yet, the actuaries tell us that the cases which probably have been incurred but not yet reported will not only absorb all of the remaining reserves but probably will require additional premium increases or assessments.

The question of the administrative practices should be carefully considered. While the JUA administrative costs, including commissions, amount to approximately 15% of the total premium income, the question has been raised whether the expenditure of this amount is really necessary. Fifteen percent of nine million dollars amounts to approximately \$1,350,000. Of this, approximately \$750,000 to \$800,000 has gone to insurance agents in commissions. Approximately \$450,000 has gone to Canal Insurance Company of Greenville for administrative services, and approximately \$130,000 has gone to the South Carolina Hospital Association for conducting a risk management program in hospitals.

The 15% allocated by the JUA for administrative costs is less than the monies used by commercial insurance carriers for similar services. However, many physicians are questioning whether or not this type of expenditure in a non-profit, monopoly program is absolutely necessary.

Physicians seem to be faced with a variety of questions. If the JUA is in fact temporary, what alternative should we seek?

Should we attempt to actively recruit commercial insurance carriers back into the market in South Carolina? Should we begin to plan for the possible creation of a physician-owned company? Should we seek to make legislative changes in the JUA so that it will be acceptable to health care providers and then seek to continue its existence as a market?

These are only some of the very complex and difficult questions now facing your Association and its leaders. Two SCMA committees are beginning to grapple with these questions, and are asking advice from consultants from the AMA and other experts in the field. At this time, no definitive solutions have been arrived at, but we hope to be able to bring recommendations to the SCMA membership and to the Council and House of Delegates in the near future. Each of your officers, in the meantime, would appreciate hearing from individual members, giving us your thoughts and opinions on these very serious and complicated questions.

Sincerely,
Waitus O. Tanner, M.D., President

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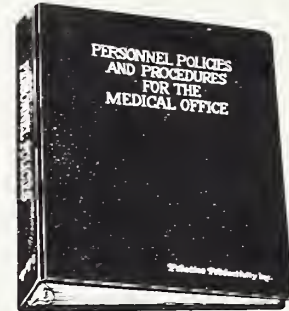
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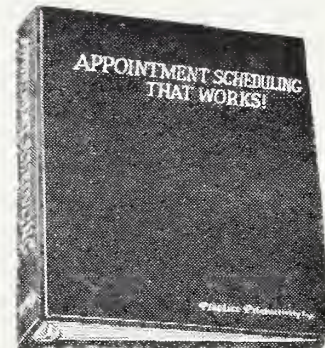
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We encourage original articles of potential benefit and interest to the members of the South Carolina Medical Association; priorities for publication are indicated in the January 1977 issues of *The Journal*. Consistent articles (of approximately 8 typewritten pages), containing relatively few, well-selected references, are preferred. References should be cited in the text in superscript, e.g., "Bone and colleagues² . . .", and should conform to the following style: "2. Bone, RC, Francis, PB, Pierce, AK: Intravascular coagulation associated with adult respiratory distress syndrome. *Amer J Med* 61: 585-589, 1976." Ordinarily, publication of four small illustrations or the equivalent will be paid for by *The Journal*. Authors may assume cost of additional figures.

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THE JOURNAL

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SYMPOSIUM ON HYPERTENSION

*The following symposium was planned and edited by Dr. James L. Young, Jr.
— Ed.*

HYPERTENSION: UPDATE, 1977

JAMES L. YOUNG, JR., M.D., F.A.C.C.*

Hypertension is now being recognized as an enormous public health problem — perhaps the single most important affliction producing premature sickness, disability, and death in the adult population of the United States. It is the leading cause of congestive heart failure and hemorrhagic stroke and a key contributing factor in myocardial infarction, thrombotic stroke, and renal failure. Epidemiological data suggest that up to 20% of the adult population of the United States has hypertension.¹ South Carolina has one of the highest cardiovascular mortality rates in the nation. That hypertension plays a key role is supported by the fact that South Carolina is also a leader in cerebrovascular disease mortality.²

With these facts in mind, a symposium on hypertension seems timely and appropriate. The literature on hypertension has become so extensive and complex that staying abreast of the developments in this field has become increasingly more difficult for the practitioner. The articles in this symposium^{3, 4, 5} are aimed toward clarification of new developments in the more important areas of hypertensive disease.

The pendulum is again swinging toward catecholamines as a significant factor in many patients with essential hypertension. While earlier studies were either negative or inconsistent;

recent evidence, as reviewed by Robertson and Nies,³ favors participation of catecholamines, especially in certain patients with labile or “borderline” hypertension. In addition to biochemical evidence brought out by more sensitive assay techniques, indirect evidence has been noted. Certain of these young patients with mild essential hypertension have clinical evidence of catecholamine excess in the form of sinus tachycardia, shortening of the pre-ejection period of systole, excessive sweating, and diminution in blood volume. In a recent article by Esler, et al.,⁶ a group of similar patients was reported with mild elevation of plasma renin activity. The elevation in renin activity was thought to be related to excess beta adrenergic stimulation of the kidney. Interestingly, this group of young hypertensive patients was found to be quite easily controlled with the beta blocker, propranolol. Control did not always correlate with lowering of the renin levels, however, suggesting additional effects on the central nervous system, lessening sympathetic outflow, which was brought about only by higher doses of the beta blocker. Other studies have shown a similar biphasic effect with propranolol therapy.⁷

The concept of categorizing hypertensive patients by their renin data has been appealing, with potential implications regarding prognosis,

* 14 Edgewood Drive, Greenville, S. C. 29605

etiology, and therapy. As pointed out by Hollifield,⁴ hypertensive patients can be placed in categories according to their renin levels — low, normal, and high. These have been variously defined by different investigators. The renin-sodium index described by Laragh, et al.,^{8,9} has the advantage of categorization into groups on the basis of only one plasma renin determination. For precise use of this data, attention is called to Laragh's articles, but for practical purposes the following renin values may serve as guidelines.

24-hour Urine Sodium (mEq)	PRA (ng./ml/hour) "normal" range
50	2-7
100	1-5
150	0.5-3.5

Laragh's initial data,⁸ suggest there are lower frequencies of complications (heart attack and stroke) in patients with lower renin levels. This was contrasted with the clinical prototype of malignant hypertension, with its associated high-renin levels, and hence the concept that renin itself might be vasculotoxic. Others, however, have found no significant reduction in incidence of stroke or heart attack in low, as compared to normal renin patients.¹⁰ In one series low-renin patients were older, and had *more* vascular complications.¹¹ In another, low-renin patients had more risk factors and a somewhat increased risk of cardiovascular events.¹² There is general agreement that high-renin levels associated with evidence of renal damage and necrotizing arteriolitis carries a poor prognosis, but there is as yet no data to suggest this is true for younger patients with mild high-renin hypertension and evidence of sympathetic over-activity.⁶

Knowledge of the patient's plasma renin status may prove to be helpful in planning an optimal anti-hypertensive regimen. Patients with high-renin forms of malignant, renovascular and essential hypertension respond more readily to propranolol,^{13, 14} and patients with low-renin levels often can be controlled with diuretics alone, as pointed out by Hollifield and others in this symposium and elsewhere.^{4, 15}

While this general trend appears to be found by most investigators, there is some disagreement as to its usefulness. Woods and co-workers,¹⁶ found no significant differences in the responses of low-renin and normal-renin patients to diuretics or to propranolol. The experience of

Hollander¹⁷ is also of interest. In this study, high-renin patients were more responsive to propranolol and low-renin patients more responsive to thiazides. However, the pressures in these patients with moderate hypertension usually did not normalize until the companion drug (i.e., either propranolol or thiazides) was added; and all three groups (low, normal, and high-renin) had a similar result from the propranolol-thiazide combination. An explanation for these findings is that the patient's renin status is not fixed, but still varies with the conditions that exist. Hence, in patients with high-renin, propranolol may lower the renin level but produces some volume expansion, and the patient becomes more diuretic responsive. Conversely, in patients with low-renin hypertension, renin levels may rise after sodium and volume depletion with diuretics, leading to enhanced responsiveness to propranolol.

The role of the peripheral plasma renin assay as a screening test for renovascular hypertension remains controversial. Vaughn and co-workers, using the renin-sodium index, found that 13 of 15 surgically cured patients with renovascular hypertension had an elevated peripheral renin.¹⁸ In a review of the literature, Marks and Maxwell, however, found only a 56% incidence of high peripheral renin levels in patients with renovascular hypertension.¹⁹ This compares well with the negative Vanderbilt experience as noted by Hollifield.⁴ Quite to the contrary, as noted, the measurement of bilateral renal vein renins has proved to be the most reliable and practical physiologic means of assessing the chances of operative success in renovascular hypertension.^{19, 20}

Elsewhere in this issue, Dean⁵ analyzes the indications for operative treatment of renovascular hypertension. The approach, as outlined, is admittedly an aggressive one, but perhaps this is appropriate. Renal artery stenosis is the most common form of surgically-correctable hypertension, with an incidence of approximately 5-10% of the hypertensive population. The percentage is much higher in referral centers, partly because renovascular hypertension tends to be severe, accounting for 25-30% of patients with malignant hypertension in some series.²⁰ As pointed out by Dean, it also is a common cause of severe hypertension in children, and in young women with fibromuscular disease. Renal artery

disease also often complicates atherosclerotic disease in the aorta and co-exists with abdominal aortic aneurysms in elderly patients. In addition, by its very nature it often co-exists with significant coronary and cerebrovascular obstructive disease. Others have noted that the course of medically treated renovascular hypertension is not benign, and control often difficult.²¹

There is general agreement that renovascular hypertension is an important problem; but considerable controversy still exists concerning the approach toward screening for it. Dean⁵ suggests that all patients with at least moderate hypertension and diastolic pressures consistently greater than 105 millimeters of mercury undergo arteriography for screening purposes. Another frequently used method of screening in the past has been the use of intravenous urography (IVP). As noted, the IVP misses up to 35% of the patients with renovascular hypertension in some series.²⁰ The cooperative study data point up, nonetheless, that a normal IVP means that a patient has a less than two percent chance of having surgically correctable renovascular hypertension.²² Further, if arteriography is performed only in those with an abnormal IVP, 83% of the patients with renovascular hypertension would be detected. Wilber²³ and others recommend a much more conservative approach on the basis of cost-effectiveness and other factors — essentially ordering an IVP only when patients have certain clinical features suggesting renovascular hypertension, or when patients prove refractory to management. While clinical features are often misleading, certain ones do have considerable usefulness — namely, an abdominal or flank bruit occurs 6-9 times more commonly in renal artery stenosis than essential hypertension. In addition, while hypertension is far more common in blacks, renovascular hypertension is distinctly uncommon.²⁴ The use of inhibitors of angiotensin-II formation²⁵ or blockade of its site of action²⁶ hold considerable promise as future tools for screening for renovascular hypertension, but must still be considered experimental.

There is general agreement that a minimal work-up for the newly discovered hypertensive patient should include a complete history and physical examination, complete blood count, urinalysis, blood urea nitrogen or creatinine, potassium, sugar, cholesterol and electrocardiogram. In patients with marked variations in

blood pressure, tachycardia, and profuse or inappropriate sweating, pheochromocytoma should be ruled out by assay of urinary catecholamines, vanillylmandelic acid (VMA) or metanephrines. Measurement of urinary 17-hydroxycorticosteroids or 17-ketosteroids can generally be omitted unless there is clinical evidence of Cushing's syndrome, virilism, or sexual infantilism. What, then, is a reasonable approach for the practitioner to follow in using the plasma renin assay, hypertensive IVP, and renal arteriogram for evaluation of hypertensive patients? At the present time, the following approach seems reasonable:

In patients with mild established hypertension, (diastolic 90-105), these studies may be omitted. Younger patients, particularly those with some evidence of hyperdynamic circulation, may be begun empirically on propranolol. In older patients a diuretic is a more reasonable first choice.

Patients with moderate hypertension probably deserve further evaluation, unless there are considerable complicating risk factors. A renin profile is helpful, if the patient is not already on therapy; and a hypertensive IVP is indicated, followed by arteriography if positive. The younger the patient, the more aggressive the approach should be. Patients with higher pressures (diastolic 110-125) in this group who do not respond to medical therapy readily with minimal side-effects should be considered for arteriography, even if the IVP is negative.

All patients with severe hypertension warrant hospitalization for a complete work-up to include a "stat" plasma renin level, then other studies including IVP and arteriography after blood pressure has been satisfactorily controlled.

All patients with hypokalemia (before diuretic therapy) should have a Lasix-stimulated plasma renin assay preferably after potassium repletion.

Serial plasma renin studies may be helpful in following the response to therapy in patients with severe hypertension, particularly if propranolol is part of the regimen.^{27, 28} Renin levels are also mandatory prior to consideration of nephrectomy in patients unresponsive to maximal antihypertensive regimens with associated renal failure.²⁹

The majority of hypertensive patients can be satisfactorily managed with simple drug regi-

mens and few sophisticated studies. Those patients who require plasma renin studies or arteriography may need to be referred to centers in larger communities where these facilities are available. □

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CATECHOLAMINES AND ESSENTIAL HYPERTENSION*

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Interest in the autonomic nervous system and its contribution to essential hypertension has been rekindled in the past five years. This is due to improved techniques for measuring catecholamines and their metabolites and the recognition of the importance of categorizing essential hypertensive patients on the basis of their renin status. *Normal and high renin essential hypertensive patients include a group with certain characteristics suggestive of increased sympathetic nervous activity while patients with persistently low plasma renin activity appear to have a volume-dependent hypertension.*

In normal man, the principal determinants of blood pressure are the autonomic nervous system and the renin-angiotensin-aldosterone system. In the face of a wide range of stresses, these systems can maintain blood pressure within the normal range.¹

THE SYMPATHETIC NERVOUS SYSTEM IN NORMAL MAN

The major adrenergic neurotransmitter is norepinephrine. It is synthesized in the neuron from tyrosine in three steps. The tyrosine is first hydroxylated to dopa by tyrosine hydroxylase.² Dopa is then decarboxylated to dopamine by aromatic-l-amino acid decarboxylase. Finally the dopamine is hydroxylated and stored in a specialized granule.³ In the adrenal medulla and the paraaortic bodies, the cytoplasmic enzyme phenylethanolamine - N - methyltransferase methylates some of the norepinephrine to epinephrine.⁴

The activity of almost all the sympathetic nervous system depends upon this scheme of

events at the neuronal level. Thus pharmacological agents which interfere with any step in this sequence may alter sympathetic activity and hence blood pressure. Since norepinephrine is the neurotransmitter in many parts of the central nervous system as well, it should be anticipated that most agents affecting norepinephrine synthesis will at high dosages have central side-effects in addition to their effect on the sympathetic nervous system. Reserpine, for example, can interfere with the ATP-magnesium-dependent transport mechanism for norepinephrine leading to depletion of its intragranular stores^{5, 6, 7} both in the periphery and in the central nervous system. On the other hand guanethidine, because of its low lipid solubility, cannot enter the central nervous system and acts only on the peripheral sympathetic neuron by binding to storage granules, depleting their norepinephrine and thus preventing adequate translation of nerve impulses into effective norepinephrine release.^{8, 9, 10}

THE SYMPATHETIC NERVOUS SYSTEM IN ESSENTIAL HYPERTENSION

The lay public has long been convinced that there is a close relationship between a nervous temperament and hypertension. With the rapid acceleration in our understanding of events at the neuronal level in the 1950's, great strides were made in treatment of hypertension by agents acting on the sympathetic nervous system. However, efforts to incriminate the autonomic nervous system as the cause of hypertension were generally not successful.^{11, 12, 13}

In the 1970's, technological improvements have permitted a reevaluation of the role of the sympathetic nervous system in human hypertension. Of greatest importance has been the evolution of accurate and rapid methods for the determination of serum norepinephrine, epinephrine, and dopamine,^{14, 15, 18, 19} and urinary normetanephrine and metanephrine.¹⁶

After early studies of urinary catecholamines

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and their metabolites showed little evidence of hyperexcretion in unselected patients with essential hypertension,^{12, 13} subgroups were sought in whom the sympathetic nervous system seemed especially likely to play a rôle. While pheochromocytoma had long been recognized as a catecholamine dependent cause of hypertension, borderline or labile hypertensive patients have recently been recognized to have many characteristics suggestive of catecholamine excess also.^{17, 18}

Borderline hypertension is generally said to exist in a subject in whom blood pressure is intermittently above 150/90 but occasionally normal. Patients with minimal persistent blood pressure elevations are sometimes also included. Thus defined, borderline hypertension is a very common finding, with perhaps 18 million Americans falling into this category.¹⁸

Several hemodynamic and humoral characteristics of borderline hypertension can be explained by excessive sympathetic nervous system activity. While cardiac output is normal in established hypertension it is raised in a significant number of subjects with borderline hypertension, but not all.¹⁷ When the significantly raised resting heart rate in this group is released from autonomic influences by both atropine and propranolol, it tends to settle into the same "intrinsic" rate as control subjects on these medications, thus suggesting a neurogenic cause of the elevated rate. An increased ratio of stroke volume to central blood volume in borderline hypertension¹⁹ also suggests a neurogenic basis. In the same group some have found a reduced plasma volume,²⁰ or a central redistribution of total blood volume²¹ both consistent with a neurogenic etiology.

With increased sympathetic nervous activity in normal subjects (exercise, pain, sodium depletion, upright posture), there is often an increase in blood levels of norepinephrine. Hence raised serum norepinephrine and urinary normetanephrine and norepinephrine can be said to be markers of sympathetic nervous activity.

Plasma norepinephrine is raised in some patients with hypertension^{22, 23} but not in all; indeed some hypertensive patients have serum norepinephrine levels that are lower than the mean for the general population. Many of the apparent discrepancies in norepinephrine levels obtained in various laboratories may relate par-

tially to differences in sodium balance, age, method of sampling (venipuncture versus indwelling catheter), and renal function. These factors do not, however, account for all the abnormalities noted in essential hypertensive patients.

If *serum* norepinephrine levels are a correlate of sympathetic nervous activity, *urinary* norepinephrine, to the extent that it reflects the integration of fluctuating serum levels of norepinephrine across time, might be expected to provide a less variable parameter of sympathetic function. However, while some subjects with hypertension have elevated urinary norepinephrine,²⁴ others clearly do not.^{14, 25}

The metabolites metanephrine and normetanephrine are present in severalfold greater concentrations in the urine than norepinephrine and epinephrine. While early studies suggested there was little difference in the excretion of these metabolites by hypertensive patients and by normal subjects,^{11, 12} more recently increased excretion of normetanephrine has been seen.^{26, 27, 28}

Vanillylmandelic acid excretion has generally paralleled that of normetanephrine with some studies documenting normal levels in hypertension^{11, 12} with others finding subnormal levels¹³ or increased levels.^{26, 28}

Most of the investigations to date have evaluated the biochemical indicators of the function of the adrenergic nervous system by measuring total catecholamines or norepinephrine. There has been less attention to epinephrine, because normal and low levels of epinephrine and its urinary metabolite, metanephrine, have been difficult to measure with precision. Nevertheless, many patients with early hypertension have features suggesting an increase in beta-adrenergic effects (cardiac, renin release). This raises the possibility that the ratio of epinephrine to norepinephrine might be increased in these patients. The newly-developed sensitive and specific techniques for measuring both normetanephrine and metanephrine by stable isotope dilution is permitting accurate determination of the relative levels of these urinary metabolites of epinephrine and norepinephrine. Preliminary data from our laboratory indicates that there is a population of patients with borderline hypertension who have raised levels of metanephrine in their urine (unpublished data). Whether this reflects alterations in renal han-

dling of metanephrine as has been described for epinephrine²⁹ is uncertain.

While urinary catecholamines and their metabolites have been the focus of much work in efforts to implicate the sympathetic nervous system in hypertension, data generated must be interpreted with caution: such urinary parameters represent the "final common pathway" of events occurring throughout the body — brain, adrenal medulla, spinal cord — and probably do not reflect sympathetic activity alone. However it has been proposed that most urinary norepinephrine is in fact derived from blood vessels³⁰ and O-methylation into normetanephrine is the primary route of metabolism for norepinephrine released by nerve stimulation.

Some of these problems are circumvented by the use of tritiated norepinephrine. Because of limited penetration into adrenal medulla and brain, this material equilibrates primarily with the norepinephrine in the neuron terminals of the cardiovascular system.³¹ Patients with essential hypertension have more tritiated norepinephrine and norepinephrine metabolites in their urine during the 24 hours following an intravenous dose of the drug than do normal subjects or patients with renovascular hypertension.^{31, 26} This is interpreted to mean that norepinephrine turnover is increased in patients with essential hypertension.

The recognition that renin release is at least partially under control³² and that its release in response to certain stimuli is attenuated by propranolol therapy³³ suggested to some that the high renin essential hypertensive patients — excluding by definition those with renal parenchymal or renovascular disease — might have increased adrenergic tone as a cause for their disease. Patients with the highest plasma renin levels do appear to respond most readily to propranolol,^{34, 35} while patients with low renin levels tend to respond only to higher doses of propranolol. It was initially felt that propranolol was effective as an anti-hypertensive agent simply because it reduced plasma renin activity. However there are now studies that show separation of the renin-lowering and blood pressure-lowering effect of the drug.¹⁷ Hence, the lowered plasma renin activity may be only a marker of the widespread alterations in sympathetic function propranolol induces, and it may be the direct effect

on adrenergic tone that causes the reduction in blood pressure.

In spite of the evidence that at least some patients with essential hypertension have a neurogenic component to their disease, the rôle of the central nervous system in modulating that component remains poorly understood. Recent experimental evidence confirms that suprapontine mechanisms are important even in such simple reflexes as the baroreceptor-heart rate reflex.³⁸ Neurogenic hypertension can be induced in animals by lesions in the *nucleus tractus solitarius*³⁹ as well as by section of afferents from the carotid sinus and aortic arch baroreceptors.⁴⁰ The relation of these findings to human hypertension is still unknown.

Nevertheless there are suggestions that some patients with high renin essential hypertension have certain psychological characteristics such as suppressed hostility which may or may not be reflected in sympathetic nervous function.³⁶ Elucidation of the psychological components in hypertension, which have so long been suspected by the lay public, must await more definitive psychometric testing.

The therapeutic implications of the accumulating data on sympathetic function and hypertension are readily apparent. While the diuretics remain the first line drugs in low renin essential hypertensive subjects, propranolol or another drug acting through the sympathetic nervous system may prove to be more effective at lower doses in the patient with high renin essential hypertension. However, it is still not known if high renin essential hypertensive subjects with blood pressure *controlled* by propranolol have a better prognosis than those whose blood pressures are *controlled* by diuretics. It will require many years of follow-up to answer that critical clinical question. □

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INDICATIONS FOR OPERATIVE MANAGEMENT OF RENOVASCULAR HYPERTENSION

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Attitudes toward the management of renovascular hypertension vary widely among respective medical centers. There are no uniformly accepted criteria for either the investigation of hypertensive patients or for the selection of individuals for operative management of renovascular hypertension. The theoretical advantages of curing hypertension by operation and thereby removing the necessity of long term, potentially hazardous and economically burdening drug therapy are obvious. Nevertheless, there remains no uniform acceptance of the necessity of diagnosing renovascular hypertension or of the superiority of operative management in this condition. If one reviews the literature and prefers to take a pessimistic view regarding the results of operative treatment, then few patients are appropriate for investigation or operation. Reported data include operative risks as high as thirteen percent,⁸ technical failures of revascularization in over twenty percent of cases,⁵ and an infrequent favorable blood pressure response to operation.⁷ Based on such poor results, only young patients with severe hypertension, uncontrolled by drug therapy, would be applicable for investigation and operation. In contrast, if operative risk is low, technical failures of operation infrequent, and one can accurately predict a beneficial response to operative treatment; then, we feel, that the indications for investigation and operation can be liberalized.

Since our approach to the selection of hypertensive patients for investigation and our criteria for operative management are based on our experience, comment on our methods of screening patients and the results of operative management are appropriate. All patients with at least moderate hypertension (diastolic blood pressure > 105 mmHg) who would be acceptable operative risks are investigated for remediable causes of hypertension. Patients with only mild hypertension are not studied, for available data suggest that

they are not at increased risk from their hypertension.⁶ Likewise, patients with easily controlled moderate hypertension who have significant complicating risk factors are excluded from intensive study. In the absence of such risk factors, however, we feel the potential cure of hypertension is superior to successful drug therapy and investigate any such patient with moderate hypertension for a correctable cause. Finally, all patients with severe or uncontrolled hypertension are investigated even when significant risk factors are present. This philosophy is especially applicable if these complicating problems are related to the severity of the hypertension and would be improved with successful operative management of hypertension. Conspicuously absent from consideration are frequently quoted screening guidelines such as a family history of hypertension, recent onset of hypertension, presence of an abdominal bruit, and the results of intravenous pyelography. Previous review of our data⁴ has shown these factors to be inaccurate indicators of correctable forms of hypertension.

All patients submitted to evaluation are screened with renal arteriography. The discovery of renal artery stenosis in a hypertensive patient does not establish the diagnosis of renovascular hypertension, however. Since the renal artery stenosis may be unrelated to the hypertension, its functional significance must be documented before one can predict a favorable blood pressure response to operation. Renal vein renin assays and split renal function studies are used in our center to confirm the functional relationship between the renal artery stenosis and the hypertension. Details of their use and their interpretation have been described previously in detail.¹ Except in patients with equally severe bilateral lesions, operative management of hypertension is considered only when either split renal function studies or renal vein renin assays have confirmed the functional significance of the renal artery stenosis.

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Our selection of patients for operative therapy employs guidelines similar to those used for the initial evaluation. The choice of drug therapy or operative management of renovascular hypertension is based on the severity of hypertension, the risk of operation, the likelihood of successful operation, and the predictability of a beneficial blood pressure response to successful operation. Using these considerations, we have undertaken operative management in over 350 hypertensive patients. The risk of operative management has been minimal. Only one operative death has occurred in the last 200 procedures limited to renal revascularization (0.5%). This excludes patients having simultaneous extrarenal vascular procedures such as resection of abdominal aortic aneurysms and repair of aorto-iliac occlusive disease. Obviously, the risk of such combined procedures is greater than renal revascularization alone and is more directly related to the risk of the simultaneous extrarenal vascular procedure.

Technical considerations important in the operative management of these patients is beyond the scope of this discussion. Yet, improvements in operative techniques have increased the frequency of technically successful revascularization. Although the report summarizing the results of treatment of our first 122 patients included a twenty-one percent graft thrombosis rate, recent experience has been more acceptable. Only six technical failures have occurred in the past 100 renal revascularizations. This 94% technical success rate was documented by the use of post-operative angiography in all patients. Although this success rate is acceptable and includes patients requiring repair of branch renal artery lesions, such peripheral lesions carry a higher risk of graft thrombosis than do lesions limited to the proximal main renal artery.

The predictability of a favorable response to operation is based on the results of renal vein renin assays and split renal function studies. Using the results of these studies to predict a favorable response, over 90% of patients with a successful operation have had either cure or significant improvement in the severity of their hypertension. Although patients with fibromuscular dysplasia of the renal artery have had a higher incidence of cure than have patients with atherosclerotic lesions, both groups have had an equally high incidence of a favorable response.⁴

The final factor to be considered in this review

of the indications for operative management of renovascular hypertension is the severity of hypertension. As previously stated, if hypertension is mild, operation is not indicated. We feel, however, our results justify an aggressive approach toward the operative management of patients with at least moderate hypertension. In patients without severe risk factors such as advanced cardiac disease, pulmonary disease, or other unrelated illnesses, operative management of moderate hypertension is undertaken without specific regard to the ease of drug therapy. Revascularization of main renal artery lesions can be performed with minimal risk (less than 0.5%) with a high likelihood of technical success (greater than 94%) and with a high predictability of a favorable blood pressure response (greater than 90%). In contrast, if the patient is elderly (over 60 years of age), has other significant anesthetic risk factors, or has a technically difficult branch renal artery lesion, then easily controlled hypertension is managed with drug therapy. Finally, all patients with severe hypertension, diastolic blood pressure greater than 125 mmHg, and all patients whose hypertension is difficult to control are preferably managed with operative therapy. Although patients with significant hypertension related diseases have a higher operative risk, they are at an even greater risk from uncontrolled hypertension. We feel that the benefit of blood pressure control in such individuals justifies the potential risk of operative treatment.

Although the preceding discussion outlines our overall policy regarding the indications for operative management of renovascular hypertension, several specific problems require special comment. These include the management of patients with bilateral renal artery disease, renovascular hypertension in children, and the management of patients over the age of fifty years. Significant bilateral renal artery lesions have been present in thirty percent of patients undergoing operation for renovascular hypertension in our center. Permanent benefit has been achieved in one half of these patients by unilateral procedures, however. The remainder have required bilateral procedures. Results of functional studies initially lateralized to one side in most of these patients, but residual or recurrent hypertension then required contralateral revascularization.³ Occasionally, patients will present with equally severe bilateral renal artery lesions

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and renal vein renin assays and split renal function studies will not lateralize. In these instances, operation is performed on the side which appears the most severe angiographically. If hypertension persists, re-evaluation is undertaken and contralateral repair is performed only when these repeat studies lateralize to the unoperated side. We feel that the risk of simultaneous bilateral renal artery procedures is unacceptable in most circumstances, for there is no proof that these lesions are, in fact, causing the hypertension. Simultaneous bilateral operations place both kidneys at risk for graft thrombosis and transient acute tubular necrosis without there being firm evidence of their functional significance as the source of the hypertension.

The operative management of renovascular hypertension in childhood is especially important due to its long-term effects on the longevity of life. When identified in early childhood; however, the hypertension is managed with drug therapy until growth allows renal revascularization. Growth of the renal vasculature to near adult size is necessary before revascularization can be undertaken. Due to post stenotic dilatation, however, the renal artery is often adult size years before the child has similarly completed growth. Since bilateral disease has occurred in 44% of children with renovascular hypertension treated in our center, nephrectomy is only employed when hypertension is severe and blood pressure control is otherwise impossible.

The final area deserving comment is the evaluation and management of patients over fifty years of age. Some authors feel that renovascular hypertension is uncommon in this group and suggest that the risk of operative treatment is too high and the likelihood of blood pressure response too low to warrant investigation and operative management in this age group.⁹ Over thirty-three percent of patients in this age group evaluated in our center have had renovascular hypertension. Similarly, over forty percent of patients undergoing operation for renovascular hypertension in our center were over fifty years old. Although the frequency of cure in this group is reduced, recent review of this experience² showed that eighty-six percent of these older patients had a favorable blood pressure response to operative management. Further, only one operative death (1.3%) has occurred in this group. We feel, therefore, that a pessimistic ap-

proach to the value of operative management in these older patients is unwarranted.

In summary, an aggressive approach to the diagnostic evaluation of patients for correctable forms of hypertension presently requires the liberal use of arteriography. Once a renovascular lesion is identified, a favorable blood pressure response to operation can be accurately predicted through functional assessment with renal vein renin assays and split renal function studies. Using the guidelines reviewed in this discussion, operative management is undertaken in all acceptable patients with, at least, moderate hypertension. *Although this approach to the selection of operative management is liberal, we feel it is justified by our experience. Nevertheless, we recognize the necessity for a prospective randomized study comparing the results of drug therapy and operative management.* Only through such a comparative study will the role of operative therapy be established. We are currently undertaking such a study in patients between the ages of forty and sixty-five years. The short duration of this study and the small number of patients involved do not permit meaningful analysis of the data at this point, however. □

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THE CLINICAL SIGNIFICANCE OF PLASMA RENIN ACTIVITY DETERMINATION

JOHN W. HOLLIFIELD, M.D.*

Plasma renin activity is accepted as an important diagnostic aid in the recognition of secondary forms of hypertension and may provide an important clue to specific and rational therapy of blood pressure elevation due to both essential (primary) and secondary hypertension.

Renin is a proteolytic enzyme produced in and secreted by the vascular pole of the renal glomerulus. The release of renin is under control of a number of factors including alterations in pressure at the afferent glomerular arteriole, alterations in the delivery of sodium to the distal renal tubule and the β adrenergic nervous system. The enzyme renin reacts in the plasma with an α -2 globulin substrate called angiotensinogen (renin substrate) produced by the liver cleaving a leucyl-leucine bond in that substrate liberating the decapeptide angiotensin I. Angiotensin I, itself, does not have significant biological activity; however, during a single pass through the pulmonary circulation, it is rapidly hydrolyzed by angiotensin I converting enzyme to the active ingredient of the renin angiotensin cascade, angiotensin II. Angiotensin II is the most potent vasopressor known being 5 - 10 times more potent than norepinephrine. To provide homeostatic control of this complex cascade, angiotensin II is capable of feed back suppression of renin release either by direct action on the juxtaglomerular cell, by constriction of vascular smooth muscle increasing renal perfusion, or by stimulation of aldosterone production by the adrenal which in turn causes sodium retention and expansion of the extracellular fluid volume. This complex cascade of protein enzymes, substrate and polypeptide endproducts plays a vital role in blood pressure and body fluid control in normal man and derangements of this system may lead to hypertension.

Plasma renin activity (PRA) is a measure of the ability of the renin present in a sample of plasma to convert the renin substrate present in that plasma to angiotensin I during a controlled timed incubation in the laboratory. The angiotensin I generated is measured by radioimmunoassay and the result expressed in nanogram angiotensin I per milliliter per 1-hour incubation (ng/ml/hr).

In 1898 two medical students, Tigerstadt and Bergman, showed that certain water extracts of homogenized kidney tissue acutely elevated blood pressure of rabbits; they called this extract renin. These experiments were largely forgotten until the classic experiments of the mid 1930's by Goldblatt showed that constriction of the dog's renal artery resulted in hypertension. Goldblatt concluded that this hypertension was caused by overproduction of renin. Through the 1940's and 1950's the biochemistry of this complex cascade was elucidated and its role in certain forms (renovascular hypertension) of human hypertension established. However, the role of renin in the pathogenesis of primary hypertension has remained uncertain.

It has been difficult to assess even the amount of renin found in the plasma of patients because PRA varies considerably with the salt content of the diet, posture and state of hydration. It was recognized that these factors must be taken into consideration when evaluating the level of PRA. Certain drugs also inhibit renin release by their adrenergic blocking effect, hence lowering PRA — (propranolol, clonidine and methyldopa); while others raise PRA either through volume depletion (diuretics), vasodilatation (prazosin, apresoline, minoxidil, diazoxide) or alterations in renin substrate levels (glucocorticoids and estrogens). Guanethidine also appears to enhance the stimulability of PRA perhaps by decreasing the effective intravascular fluid volume secondary to increased peripheral venous pooling.

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PLASMA RENIN ACTIVITY

The initial attempts to use PRA to recognize secondary forms of hypertension were fraught with confusion due to the extreme lability of renin in plasma and it initially appeared that PRA would not become a clinically meaningful measurement in the evaluation of the hypertensive patient. However, in 1963 the St. Mary's (London) group showed that PRA was low in patients with primary aldosteronism — a condition caused by a tumor of the adrenal gland which produces excessive amounts of the salt retaining hormone, aldosterone and is associated with hypokalemia. *It was soon demonstrated that any secondary form of hypertension caused by excess production of mineralocorticoids (salt retaining) hormones was associated with low PRA, which does not increase with upright posture, diuretic use or low salt intake.* In addition to primary aldosteronism other conditions known to cause mineralocorticoid hypertension include certain adrenocortical carcinomas or adenomas and congenital adrenal hyperplasia all of which produce mineralocorticoid, desoxycorticosterone (DOC) in excess. In pseudoaldosteronism, it is licorice extract rather than endogenous production of salt retaining hormone that produces the hypertension and low PRA.

A small group of families has been described in whom hypertension and hypokalemia exist along with low PRA. These patients do not have primary aldosteronism, because the aldosterone excretion rate is quite low. This disorder, called Liddle's syndrome, results in excessive sodium retention and potassium loss with expansion of the plasma volume resulting in decreased renin and aldosterone production. This disorder is treated with triamterene which results in correction of the hypertension and hypokalemia.

Thus, pathologic suppression of PRA is commonly seen in patients with mineralocorticoid induced hypertension; however, other factors such as high salt intake can physiologically suppress renin in patients with essential hypertension. In order to separate this physiologic suppression of renin from the pathologic suppression of renin seen in mineralocorticoid-induced hypertension, maneuvers are necessary to stimulate the PRA. In hypertensive patients whose renin has not been chronically suppressed by mineralocorticoids there will be an acute stimulation of renin during acute administration of diuretics or during dietary sodium restriction.

However, in patients who have chronically suppressed PRA due to mineralocorticoid excess, there will be little or no stimulation of PRA. This observation resulted in clinical methods by which hypertensive patients could have their renin system evaluated. Initially, these studies were carried out on a metabolic research ward and the patients renin status was defined on both high sodium intake (100 to 150 mEq sodium per 24 hrs) and low sodium intake (10 mEq per 24 hrs). The demonstration that PRA did not rise during a 10 mEq sodium diet was strongly suggestive of a mineralocorticoid form of hypertension.

Evaluation of large numbers of hypertensive patients in the hospital under formal metabolic balance conditions proved time consuming and expensive. For that reason many investigators developed *simplified outpatient screening techniques* which have proved to be useful in the *separation of hypertensive patients into those with high, normal, or low plasma renin activity.* Two of these techniques have found widespread usefulness. The renin sodium index developed by Buhler and Laragh involves the collection of a 24 hour urine and an upright PRA collected at the termination of the 24 hour urine. It is well known that dietary sodium intake is closely reflected in urinary sodium excretion. Therefore, low urinary sodium indicates low sodium intake with increases in PRA; conversely, as the urinary sodium increases there is a suppression of PRA. Patients can thus be recognized as having low or suppressed PRA by observing the renin sodium index with the patient on a low sodium diet. Another method of renin categorization provides an acute stimulus to renin release with acute administration of a vasodilator or diuretic. The most commonly used acute stimulation test involves the administration of oral or intravenous furosemide (40 - 80 mg) and collection of an upright plasma renin activity. Patients with mineralocorticoid induced hypertension will have low PRA which resists acute stimulation, while those with excess dietary sodium intake will have an increase in their PRA.

These two techniques do not always identify the same group of patients; however, they do both prove to be useful in the recognition of patients with mineralocorticoid induced hypertension.

PLASMA RENIN ACTIVITY

The plasma renin activity by either of the two methods has not found widespread use in the recognition of renin mediated forms of hypertension such as renovascular disease because there is such a dramatic overlap between those patients with renovascular hypertension and those with essential hypertension and normal or high PRA. For that reason PRA is not useful as a screening technique in the recognition of renovascular hypertension.

The methods of renin categorization have permitted the division of patients with essential hypertension into low, normal or high renin categories. These categories of essential hypertensive patients respond differently to different antihypertensive medications. Patients with low renin essential hypertension are felt to be more diuretic responsive and hence resemble in many aspects those patients with mineralocorticoid induced hypertension. Patients with normal or high renin essential hypertension respond much more readily to the adrenergic blocking agents, particularly propranolol. These methods of renin categorization serve therefore as useful guides in the determination of the therapy of the hypertensive patient.

Plasma renin activity may also be measured in the renal vein venous effluent in those patients who are suspected of having renal origin hypertension, such as renal artery stenosis, unilateral hydronephrosis, unilateral small kidneys, renal infarction and renin secreting tumor. The demonstration of a renal venous renin ratio of 1.5:1 (affected side/non-affected side) is indicative of a functionally renal origin disease. A high degree

of success in obtaining surgical cure of hypertension has been seen in patients with renal artery stenosis with significant lateralization of the renal venous renin determinations.

Thus, plasma renin activity both from peripheral blood and renal venous blood can be a valuable adjunct in the recognition of certain curable forms of hypertension and may serve as a guide to specific and rational therapy of essential hypertension. □

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SHOULD CLINICALLY DIAGNOSED DOWN SYNDROME BE CONFIRMED BY CYTOGENETIC STUDY?*

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GRACE C. C. CHEN, M.S.
S. ROBERT YOUNG, Ph.D.**

It is well known that cases of Down Syndrome,*** commonly referred to as mongolism, may be diagnosed clinically.^{1, 2} A patient who is suspected to have Down Syndrome may not exhibit every sign and symptom of the disease, but there are usually sufficient clinical findings to allow a correct clinical diagnosis.^{1, 2} Because approximately 5% of cases of Down Syndrome are the translocation type and about half of these cases are familial,⁴ we believe it is important that all cases of Down Syndrome be studied cytogenetically.

The overall incidence of Down Syndrome in recorded live births is between 1/600 and 1/700.^{2, 3, 4} In general, there are three chromosome anomalies that can cause Down Syndrome; trisomy 21, D/21 translocations occurring with two normal 21 chromosomes and G/21 translocations occurring with one or two normal 21 chromosomes. The latter two anomalies may produce familial Down Syndrome.

Trisomy 21 (Figure 1), the occurrence of three number 21 chromosomes, is the most frequently found chromosomal anomaly associated with Down Syndrome. The total chromosome number is 47, i.e., there is one extra chromosome in these individuals. Approximately 95% of patients exhibiting characteristics of Down Syndrome have this karyotype.^{2, 3, 4} Trisomy 21 is a randomly expressed phenomenon and the probability of recurrence in future siblings has been estimated between 1 and 2%.^{1, 5}

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*** We have deleted the possessive from this eponym in accordance with the National Institutes of Health report, "Proposed Guidelines for the classification, Nomenclature, and Naming of Morphologic Defects."

Translocation of a 21 chromosome to a chromosome of the D group (Figure 2), represents the major source of familial Down Syndrome⁵ and is found in 9% of Down Syndrome affected children born to mothers under age 30.⁴ D/21 translocations account for an estimated 3 to 4%^{3, 5, 6, 7, 8} of cases of Down Syndrome. These patients have two normal 21 chromosomes and another 21 translocated to a D chromosome, giving a total genetic complement of three 21 chromosomes. Down Syndrome individuals with a D/21 translocation maintain the normal number of chromosomes, 46.

In approximately 50% of the cases of 15/21 translocation Down Syndrome, one of the phenotypically normal parents has a balanced D/21 translocation and only 45 chromosomes in their karyotype. The carrier parent theoretically has six germ cell lines. Three of the possible germ cell lines would be lethal, thus leaving three cell lines that could be viable following normal fertilization.^{4, 9} The offspring are of three types; normal, translocation carrier (normal phenotype), and translocation Down Syndrome affected. Of the offspring of a translocation D/21 carrier parent, 33% should theoretically be affected with Down Syndrome, but this is not seen.⁴ The observed ratios for Down Syndrome when live births are considered are between 10 and 20%.^{3, 9} One explanation is that intrauterine death of the more severely abnormal concepti lowers the percentage of Down Syndrome children in live births.⁹

The third chromosome anomaly leading to Down Syndrome is a G/21 translocation of either the 21/21 or 21/22 variety. The G/21 translocation is also a source of familial Down Syndrome.

A Down Syndrome patient with a 21/21 translocation would have a translocation chromosome

DOWN SYNDROME

consisting of the genetic material of two 21 chromosomes, plus a single 21 chromosome, creating effectively three 21 chromosomes (Figure 3). The chromosome number in these patients is normal, 46. About 1 to 3% of cases of Down Syndrome are of this type.^{3, 6, 7, 8} Of these 21/21 translocations, 5 to 6% are inherited while the remaining 94 to 95% arise *de novo*.³ The significance of phenotypically normal 21/21 translocation carriers is that there is 100% risk of Down Syndrome in their viable offspring (i.e. 50% concepti monosomic 21, lethal; 50% concepti Down Syndrome affected).^{3, 9}

A 21/21 translocation can also lead to Down Syndrome. The patient would have a 21 chromosome translocated onto a 22 chromosome as well as two normal 21 chromosomes, thus maintaining the normal total chromosome number, 46. A female translocation carrier of the balanced 21/22 type has a 9% risk of producing a child with Down Syndrome.¹⁰

Because of significant risk of recurrence in cases of translocation Down Syndrome, it is important to distinguish this form from the more frequently observed trisomy 21. It is therefore

important that all cases of Down Syndrome be studied cytogenetically. Through cytogenetic study, cases of familial Down Syndrome may be identified and further Down Syndrome in these families avoided by early amniocentesis and prudent counseling. □

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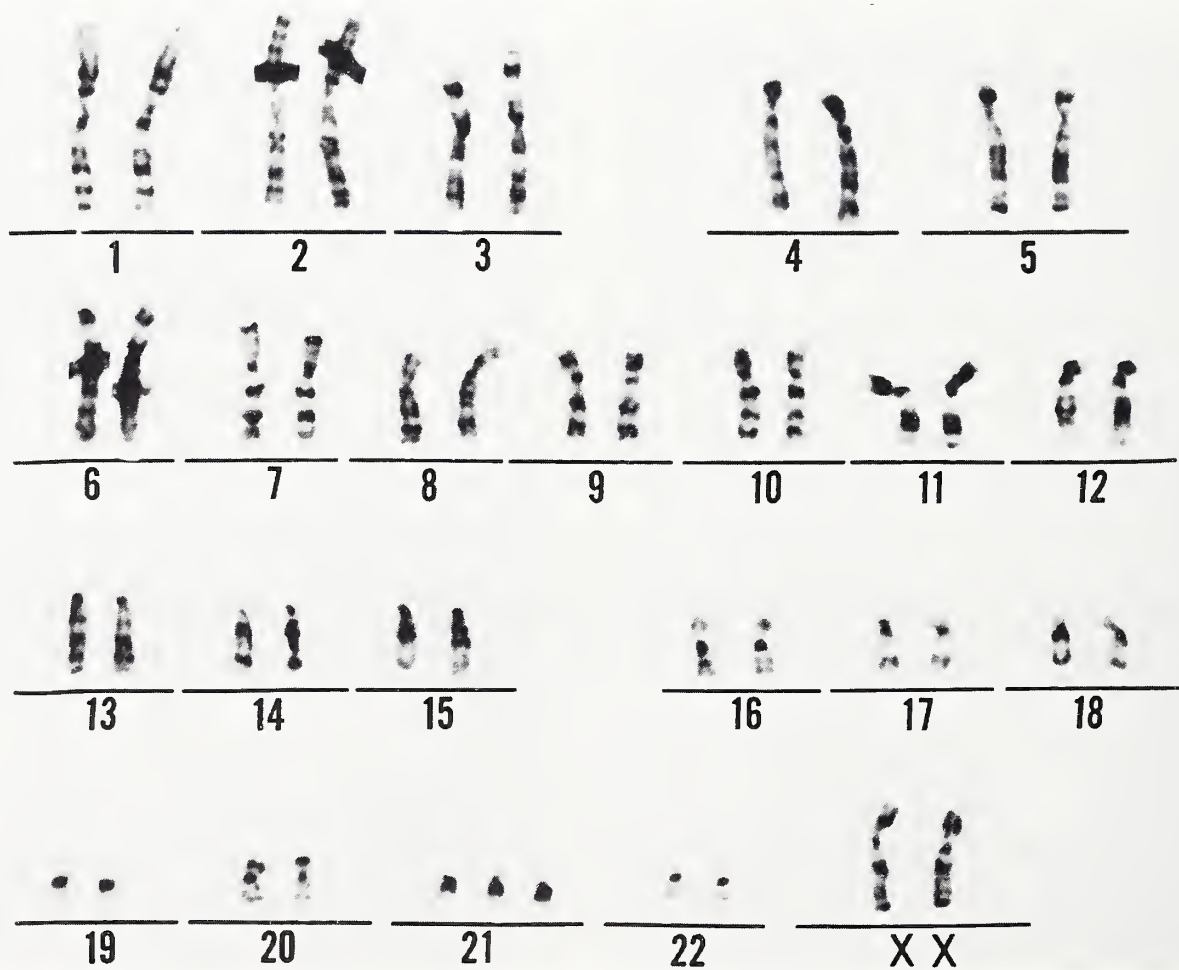


FIGURE 1. Trisomy 21, female karyotype (47,XX,+21).

DOWN SYNDROME



FIGURE 2. 15/21 translocation Down Syndrome, male karyotype (46,XY,-15,+t(15q21q)).

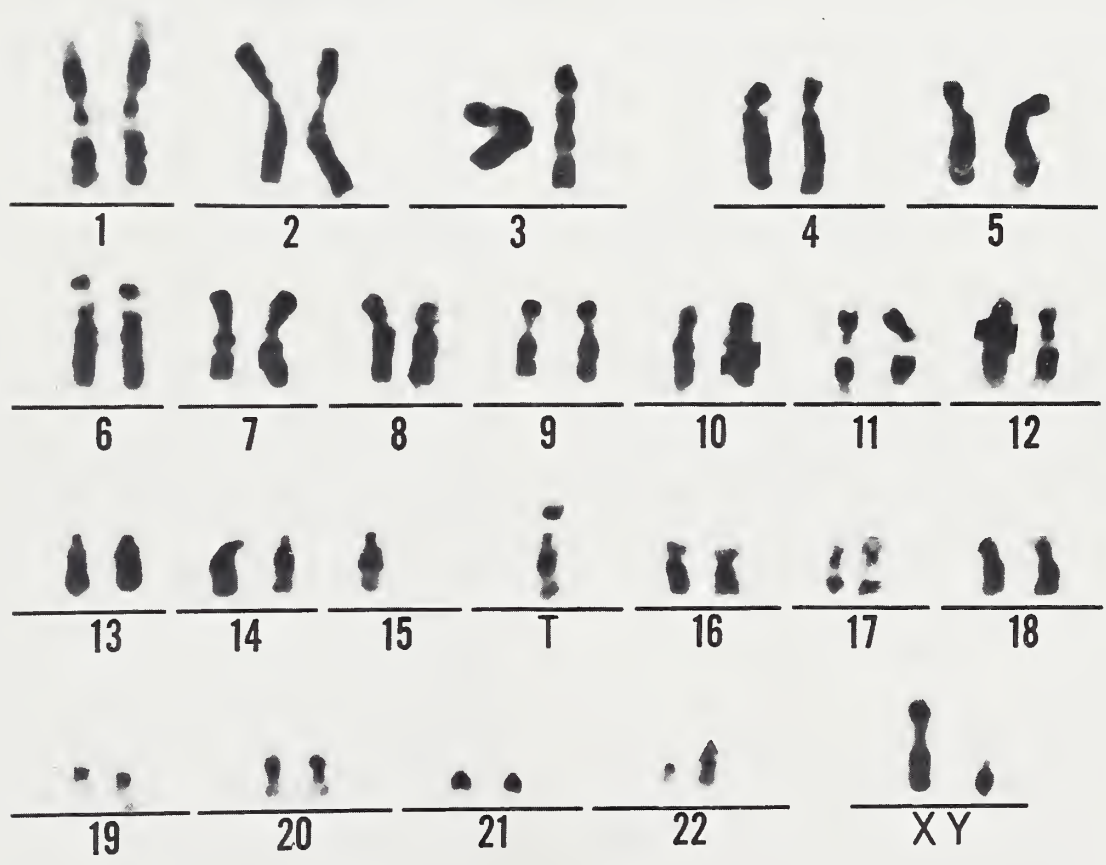


FIGURE 3. 21/21 translocation Down Syndrome, female karyotype (46,XX,-21,+t(21q21q)).

Editorials

EXCERPT

The following passage, from Dr. Gilland's Presidential State of the Association Address given before the House of Delegates of the South Carolina Medical Association, April 29, 1977, seemed to us to contain lasting inspirational value.

— Ed.

And thus as I bid you farewell at the conclusion of this Annual Meeting, I leave you with these thoughts:

- continue to apply your God-given talents,
- continue to practice your acquired education for the good of all mankind,
- continue to work for your professional Association,
- leave your mark where you have been for others to see and some to follow, and
- always remember — you only pass this way once.

— J. D. Gilland, M.D.

EMERGENCY ROOMS AND COST CONTAINMENT

A child complains that his throat hurts; his mother carries him to the local emergency room. It proves to be “a virus,” and the child is well three days later without treatment. The emergency room bill then arrives: \$12 for walking through the door, \$7.50 for a complete blood count, \$25 for a chest x-ray, \$17.50 for a throat culture, and \$10 for miscellaneous expenses. The total: 72 dollars.

The example is fictitious, and the fees which are cited are not those of any institution in particular. These figures were given as an illustration of the problem by a member of the South Carolina Medical Association Council, expressing his concern and frustration about the rising costs of emergency room visits. While a bill of 72

dollars for viral pharyngitis may well be an “extreme” example, such examples do occur and, from time to time, have a way of surfacing in the lay press (several years ago, a story was disseminated of a bill of several hundred dollars to extract a piece of popcorn from a child's ear).

It might comfort the public to know that surveys show that most physicians identify the problem of cost containment as *the* major problem facing contemporary medicine.¹ The consensus among the members of the SCMA Council seemed to be that *cost containment should start in the emergency room*. The problem is huge — what can we do about it?

We might begin by ordering fewer laboratory tests. Some studies — such as skull series for

head trauma, or complete blood count and electrolytes for abdominal pain — seem to have a way of becoming “automatic” in our emergency rooms, whatever the magnitude of the problem. Few studies exist to justify most of the expense, and most physicians probably agree that a great deal of expense could be avoided were we to use a greater measure of old-fashioned clinical judgment and conventional wisdom. But the emergency room physician, unlike the office-based private physician, usually has little or no previous experience with his patient, cannot be certain whether his follow-up recommendations will be heeded, and runs the risk of retrospective criticism, often with medicolegal implications. A hairline fracture turns up three weeks later — *why wasn't* an x-ray ordered in the emergency room? Thus, in day-to-day practice, the easier and perhaps the safer course to follow often seems to be that of employing our technology, even when we know that the cost-benefit ratio is quite high. The issues here are fundamental, and few solutions, if any, are available.

Even more fundamental is the question of *why* patients seem to rely, more and more, on the emergency room for ambulatory care. When patients seek these services, they go primarily to a *facility* rather than to a *physician*. Our emergency rooms do many things well, but it is yet to be established that they can render ongoing ambulatory care as effectively as can the office-based private physician. For example, a study of the outcome of gastrointestinal x-rays ordered in the emergency room setting by house officers of one of our nation's better institutions disclosed appalling results: follow-up was usually deficient. These activities seemed to have, as their end result, the mere processing of laboratory reports rather than the rendering of patient services. Do we need to “sell” the public on the advantages offered by a private physician's continuity of care?

With the latest equipment and with the resources of an entire hospital at its disposal, the emergency room provides the private physician's office with formidable competition. There may be a tendency, indeed, to view the solo physician's office as a backward, anachronistic institution. But the public should not ignore the personalized care which the solo physician still renders. Such care is in keeping with a “back to the basics” philosophy now pervading many seg-

ments of our society, especially the young.

Six years ago, a Washington, D. C. internist, Michael Halberstam, wrote an editorial which seems pertinent to this problem.² Halberstam argued that truly “liberal” or “radical” thought, applied to patterns of medical practice, favors the personalized, individual brand of patient care found in the private physician's office, but not necessarily in the institutional setting. He elaborated:

“A central malaise in American life today . . . is depersonalization, and the radical analysis of our society calls for *smaller, less rigid* units of service. In the long run these may be more efficient than larger units planned by the cost-accounting method. Medical care, being a personal service, may develop dis-economies of scale early on. Any reform of American medicine must be based not only on the need to get care to all people, but also on growing demand of all citizens, especially the young, for *personal, humanistic* services.” (Italics mine)

The potential for private physicians to render such personal and humanistic services needs to be emphasized, and the primary care specialties need to increase the attractiveness of the physician's office, as opposed to the emergency room, for treatment of most ailments. The private physician, who knows the patient from previous experience, should nearly always be better prepared than his emergency room counterpart to *use technology sparingly and judiciously*. Cost containment follows.

The network of private physicians' offices is, admittedly, an imperfect supermarket for health care delivery. But ask any housewife — she will tell you that prices encountered in a supermarket are consistently lower than those encountered in the open-until-late-hours convenience store.

CSB

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HYPERTENSION — THE NIGHT THIEF

Nine percent of white Americans and 22 percent of black Americans have diastolic blood pressures greater than 95 mm Hg, and statistics suggest that this problem is more prevalent in South Carolina than in the nation as a whole. The ability of our health care delivery system to cope with hypertension is sometimes used as a litmus test of its overall efficiency. The cost of uncontrolled hypertension runs high; blood pressure can nearly always be controlled in the help-seeking, cooperative patient under the supervision of a conscientious physician. Why does hypertension remain so prevalent?

All physicians are familiar with the problems of close follow-up of these patients. Many patients remain convinced that they can correlate their blood pressures with headache, dizziness, and other symptoms. Perhaps they can, for extreme elevations of blood pressure, but there is clearly a need for wider recognition that hypertension ranks among our best examples of *silent* diseases, causing damage like the proverbial "thief in the night." Massive screening programs are advocated for early detection. These are useful, but we must also emphasize the limitations of a single blood pressure measurement and must appreciate that even the *accuracy* of this measurement often leaves much to be desired.

The symposium in this issue of the *Journal* addresses several areas of research activity which have immediate clinical relevance. Drs. Robertson and Nies comment on the recent rekindling of interest in stress and catecholamine excess as a determinant of blood pressure. Their review should be of special interest to the many South Carolina physicians who participated in the recent symposia on stress and cardiovascular disease, published in 1976 as a supplement to the *Journal*. Whether drugs affecting sympathetic nervous system function, such as propranolol, should have a wider role in management of certain hypertensive patients remains unclear; at present, both prior and concomitant trial of a diuretic would seem to be judicious in the majority of instances. Robertson and Nies make it clear that their discipline — clinical pharmacology — does not hold the key to all of the answers. Many of the problems fall into the realms of clinical psychology, sociology, and education.

The review of renovascular hypertension by Dean suggests that most patients with at least

moderate hypertension (defined as a diastolic blood pressure greater than 105 mm Hg) should undergo renal arteriography, and that the technology for surgical revascularization of the kidneys has become acceptably safe. The approach is admittedly "aggressive." Others dispute the benefits to be derived from "liberal" use of renal arteriography and renovascular surgery. For example, a recent review from the Mayo Clinic indicated that only 0.18 percent (about 1 in 500) of referred patients needed surgery for renal artery stenosis.¹ A conservative viewpoint would be to "screen" most patients with "at least moderate hypertension" and highly suggestive clinical or laboratory findings, or hypertension refractory to drug therapy, for arteriographic study.

The paper by Hollifield summarizes concisely the state of the art concerning plasma renin activity, which was discovered by two medical students in 1898. The division of hypertensive patients into "low renin," "normal renin," and "high renin" categories seems attractive. Nevertheless, a cogent argument can be made *against* routine renin determinations at the present time.² Long-term studies by Hollifield and other investigators will, hopefully, provide us with further guidelines for use of renin determinations.

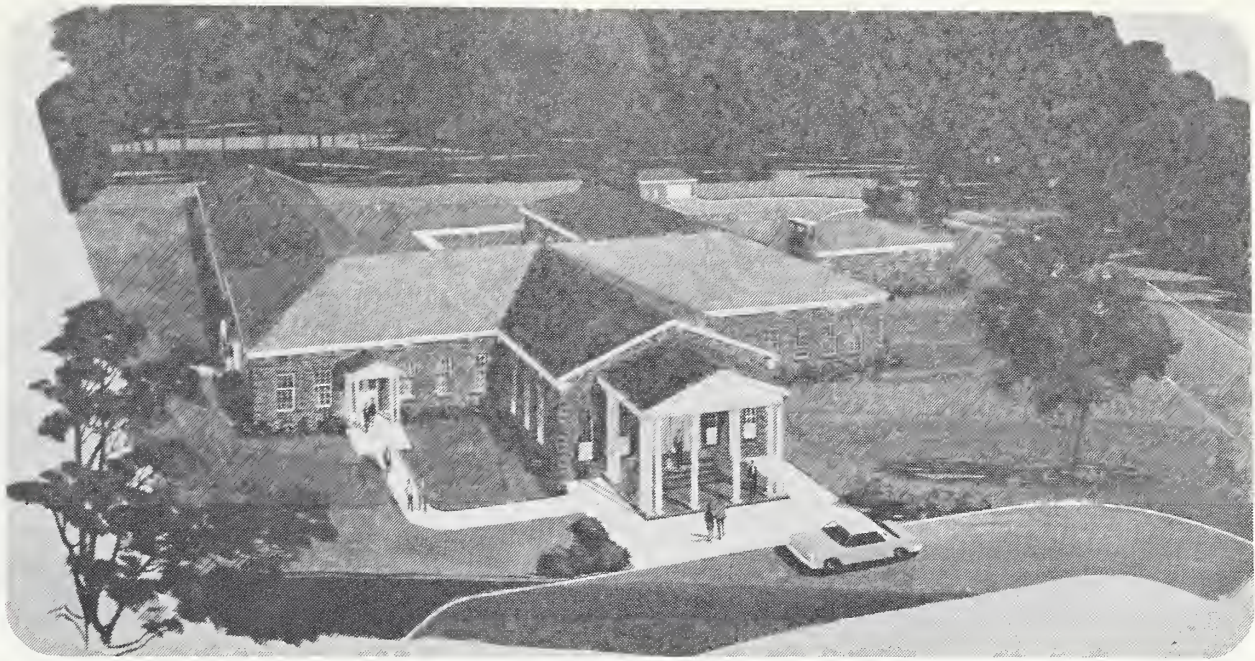
Finally, the introduction by Dr. James L. Young, Jr., aptly summarizes the clinical implications of much of the newer information. His closing statement that most hypertensive patients "can be satisfactorily managed with simple drug regimens and a few sophisticated studies" should be reassuring. Among the most valuable and time-proven bonds between patient and physician is the mutual interest in the patient's blood pressure. Office monitoring of blood pressure, liberally assisted when appropriate by the use of flow sheets and sometimes by the use of home blood pressure measurements, remains the cornerstone not only to recognition of hypertension but also to long-term, rational therapy.

— CSB

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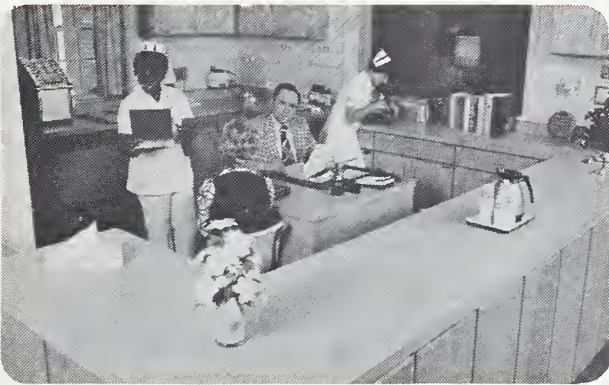
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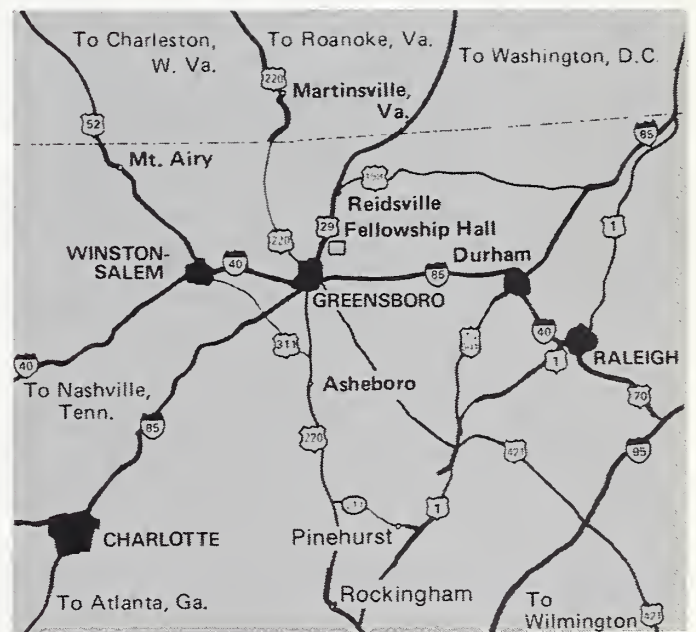
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FELLOWSHIP HALL WILL ARRANGE CONNECTION WITH COMMERCIAL TRANSPORTATION

President's Pages

Editorial Note:

The President's recommendation was approved by the Reference Committee and the House of Delegates, and the appropriate Resolution will be presented to the AMA House of Delegates this month.



REPORT OF THE SOUTH CAROLINA MEDICAL ASSOCIATION PRESIDENT TO THE SOUTH CAROLINA MEDICAL ASSOCIATION HOUSE OF DELEGATES

NOVEMBER 5, 1977, SPARTANBURG, S. C.

First, I would like to thank the Spartanburg County Medical Society for their fine work in hosting this Mid-Winter meeting and particularly Sidney Fulmer, Jack Keith and Euta Colvin.

Your Chairman of Council, Halsted Stone, will report to you on the condition of the SCMA and the status of many of its programs and projects. However, I do wish to say that it is with great pride I tell you the SCMA is in great condition and is a vibrant, growing organization.

As your President of the SCMA, I have chosen today to speak with you concerning our philosophical problems. Because although we are doing quite well in solving our material problems, we have others on which we are just starting to break ground.

Three major elements in medical care are: *Access, Cost and Quality.*

During the past six months, I have become more acutely aware of the image of the medical profession and what our patients and the public think of us. Over all we are not doing too badly, but I think the following points need to be made.

The foremost complaint of patients in my experience is not the cost of medical care, but the fact that it is not available when they think it should be. Part of this is due to the fact we have what is referred to as maldistribution of physicians, but even more to the fact that we do not have enough physicians who can or will see patients with acute illnesses the day they get sick. The average patient does not care if there is a physician in town who can do open heart surgery or brain surgery, but rather that someone is there to see and treat him or her for a sore throat or cystitis. What he most desires is a physician who is interested in him, knows him and his family, and will see him in a reasonably short time.

The facts are that many of our problems may be due to the fact that private medicine has allowed too many vacuums in the practice of medicine to occur, and anytime a vacuum exists something rushes in — and in this case it is the paramedical field. It is ironic that in an era when more and more emphasis is being made to increase the standard requirements of M.D.s that on the other side of the practice of medicine is being invaded by the paramedics with usually less than adequate training. Most of this invasion is possible because of default by we physicians and as a result, quality suffers.

One of the areas medicine is incurring a great deal of criticism at present is the high cost of emergency room treatment. First, let us discuss why the patient is in the emergency room for what purpose. Eighty percent of the patients treated in emergency rooms are non-emergencies: they are there because of a variety of reasons (1) it was more convenient than coming to an M.D.'s office, (2) no private practicing physician would see him, (3) they did not have a primary M.D., etc. Whatever the reasons, they end up in an atmosphere in which they see a physician who they have never seen before and will never see again, and at a fantastic cost. The average emergency room, non-emergency visit costs from three to ten times the cost of seeing the same condition in a private M.D.'s office. It is an absolute fact that the most economic place by far to see a patient is in a private M.D.'s office.

In addition to these problems, we also have the fact that the high rate of X-rays and tests generated by the emergency rooms and defensive medical practice by the staffs of hospitals have contributed to the high incomes of the hospital-based physician, such as Radiologists and Pathologists, and have brought them unfairly under criticism.

The high cost of emergency room treatment is under fire by third parties and the public who have to foot the bill. The SCMA, realizing these facts, has formed a task force to study the problem and make recommendations.

This brings up two other basic problems of the medical profession: the lack of what is termed primary care physicians. Part of the blame must be laid at the feet of our medical education system where the emphasis is on research and super-specialization. Even our admittedly fine family practice residency programs are putting out doctors who expect to see ten patients a day. This, of course, is unrealistic. We have excellent rapport with the administration of our medical schools and hope to be able to unite in changing this situation.

Medicine may be caught up in the same dilemma of the engineering profession which, after Sputnik, put out so many Ph.D.s that there was no place for them, and there are many other lessons in putting out over-qualified people in various fields with resulting chaos. We need more physicians who will see patients the day they are sick, and a high volume of patients. This is what the public wants more than anything else.

Recently, in council, we have discussed the midwife, nurse practitioners, and nurse clinician problems which are with us because of the vacuums which we alluded to before. At one time, general practitioners and family practitioners did OB and we did not have a problem getting babies delivered. Now, very few family practitioners and general practitioners are delivering babies, mainly because they at one time were not looked upon as adequate. Now, we have reverted to midwifery. This is another area we will have a task force working on to find solutions.

All this brings me to the reasons we must solve the afore-stated problems.

NATIONAL HEALTH INSURANCE: The South Carolina Medical Association appeared at the hearing on National Health Insurance in Columbia on October 20, 1977. The statements which were reported in *The State* newspaper on October 21 made it very clear that the physicians of South Carolina are opposed to any national health insurance which we equate with socialized medicine. It is quite evident the only block to HEW and Congress' forcing NHI on the people and physicians of this country is the fact which even they are aware of, and that is — this country at this time cannot afford it. And as Senator Abraham Ribicoff has stated, the people of the U.S.A. will not tolerate another expensive bureaucracy. However, in my opinion, we cannot assume the planners are going to realize this fact. Therefore, we must stop taking a *passive* attitude toward the socialized medicine spectre and *actively* oppose the Washington planners and become evangelists to our patients and friends against this terrible false panacea. Let me say that the proponents of NHI are particularly vulnerable at this time. *Join the battle. Alert the people. Our cause is worthy.*

And, finally, let me take up the position of the AMA, and its NHI plan, House Bill 1818. I am sympathetic with the dilemma that the AMA was in. They felt they had to produce an alternative, but I feel that if this bill were to come up and were amended to death with elements with which we did not agree, it would still be labeled "The AMA Bill."

Therefore, I believe this body should take positive action at this session to make it clear to the AMA that the physicians of South Carolina are opposed to NHI and socialized medicine in any form, and urge the AMA to withdraw support of the AMA Bill, no matter how embarrassing this would be. This position has the endorsement of your council.

I request and urge that the reference committee on reports of council and officers to recommend that the South Carolina Medical Association House of Delegates instruct the SCMA delegates to prepare a resolution outlining our opposition to House Bill 1818 and urging withdrawal of support, and that this resolution be presented to the AMA House of Delegates at the December meeting of the AMA.

Waitus O. Tanner, M.D., President

AUXILIARY PRESIDENT'S PAGE



The following report was presented before the South Carolina Medical Association House of Delegates at the Mid-Winter Meeting in Spartanburg, South Carolina, on November 5, 1977. I am pleased to let you know that this report was well-received and the Auxiliary was commended on its continued good work, particularly in the area of child protection.

REPORT OF THE SCMA AUXILIARY TO THE HOUSE OF DELEGATES MIDWINTER MEETING, NOVEMBER 5, 1977, SPARTANBURG, S. C.

It is a pleasure and a privilege to meet with you today. I bring you greetings from the Auxiliary to the South Carolina Medical Association and a thank you for the wonderful support you are giving us. It was a distinct pleasure to have your President, Dr. Tanner, and the members of the Advisory Council, S. C. Medical Association, with us at our Fall Executive Board Meeting.

Our theme for the year is **NEW DIRECTIONS**. We are stressing goals and values as we strive to advance in membership so that we may keep continuity in Health Programs while we stimulate participating in AMA-ERF, Legislation and Project Bank, and create interest in becoming informed and informing others.

We have set a goal of 100 new members. We are well on the way with the addition of our 18th auxiliary — Dorchester County, and high prospects of Union County. Two new auxiliaries is our goal, but we are reaching for three. Membership is a two-way stretch. We need you to encourage your spouse to join us. If your county does not have an auxiliary, how about asking your spouse to get a group of doctors' spouses together and let's form an auxiliary to promote the best interest of medicine. We, in turn, will encourage the spouses to encourage the doctor to join the Association. Newberry County has the first male member.

Our goal for AMA-ERF for scholarships and Research is \$25,000. We have an energetic chairman who has the ball really bouncing that way. We need your support, too.

Under Family Health and Community Health, we are keeping continuity in programs Blood Bank, High Blood Pressure, Cancer, Mental Health, Retarded Children, and screening for eyes and ears, while we promote our state project, Child Protection. In addition to these, we are promoting the immunization program for youths.

Other projects include the Modern Health Education exhibit in the Charleston County Museum, Meals on Wheels for the Elderly, Programs on Malpractice, and the Health Careers Fair to encourage youth into medicine or allied fields of medicine. A number of counties are giving scholarships to deserving youth in addition to our state scholarship.

' Our LEGS-ALERT stands ready to assist you with the Bills before Congress when you ask us.

It is our purpose to promote friendliness among physician families and to assist the medical association in its endeavors to advance the quality of medicine. At the Executive Fall Board Meeting last week, the auxiliary voted to cooperate in co-sponsoring with the South Carolina Medical Association, the series of workshops for physicians and their spouses, under consideration for 1978, if the Association votes favorably on this.

It is our pleasure to assist the South Carolina Medical Association in any way we are able. Thank you for allowing me to share our goals with you.

Elise (Mrs. Rufus) Cain, President

PATIENT PACKAGE INSERTS: A CONCEPT WHOSE TIME HAS COME?

The consumer's right to know is an irreversible and desirable trend of the Seventies. It extends, and properly, to a patient's right to know more about his or her prescription medications. One way, gaining favor, is through patient package inserts. Wisely-prepared and properly distributed when medically indicated, they could markedly improve patient knowledge and drug therapy—laudable goals by anyone's standards.

The PMA endorses these goals and will work with government, the health professions and consumers to achieve them.

The Advantages

The concept holds promise of benefits: better patient understanding of the product prescribed, better adherence to the treatment plan, and more awareness of possible side reactions.

Every doctor has had patients who fail to finish antibiotic regimens because they feel better. Some patients assume that if one tranquilizer or analgesic is good, two may be twice as good. Still others fail to report dizziness while on antihypertensive therapy—and so on.

Problems like these might arise less often if the patient received written information in addition to verbal instructions. Some studies suggest that patients are more receptive to such materials, and they more often understand the verbal instructions and follow them, when inserts are used.

The Disadvantages

There are also some potential problems. Obviously, the inserts must be clearly phrased, without extraneous or complex detail. How much information

is enough? How can it be kept current? Should all patients receive the same information? Should inserts be included with all drugs? Should only potential problems be listed or are patients better off with a "fair balance" presentation that describes usefulness as well as drawbacks?

These and similar questions require answers, since model inserts have yet to be properly developed and tested. Despite the need for these studies, the FDA is proceeding prematurely with inserts on selected products. We think the Congress is the only place where the matter can be given the proper legal status and direction, particularly since it represents a conceptual change in the legal, medical and social framework of the nation's prescription drug information system.

The Solution

The PMA believes that carefully-devised pilot studies of various kinds of inserts are needed. They should be developed and implemented with full participation by doctors, pharmacists, consumers, communications experts and the drug industry. Such studies will provide reliable pathways to follow, so that inserts will be useful aids to medical practice.

And particularly we think that you should be closely involved in this debate and in these studies and decisions. Otherwise, people with less experience and qualifications may control the purposes, content and use of a tool with considerable promise for improved patient care. It could make a difference in your practice tomorrow, and more importantly, in the health of your patients.



THE PHARMACEUTICAL MANUFACTURERS ASSOCIATION
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PHYSICIAN RECRUITMENT/PLACEMENT

The following physicians are actively seeking practice appointments in South Carolina:

DERMATOLOGY — Age, 29. Graduated Medical College of Virginia, Richmond, Va., 1974. Internship, Medical College of Virginia, 6/74-6/75. Residency, Case Western Reserve Univ., Cleveland, Ohio, 7/75-6/78. Board certified. Board eligible, 1978. Seeks partnership practice or single-specialty group practice in large metropolitan area with no preference as to area of state. Mainly interested in Pediatric Dermatology and seeks practice near medical center with teaching possibilities. Available summer, 1978.

INTERNAL MEDICINE — Age, 39. Graduated Seton Hall, N. J., 1963. Internship, Mountainside Hospital, Montclair, N. J., 1963-64. Residency, Henry Ford Hospital, Detroit, Mich., 1966-69. Henry Ford Fellowship, Gastroenterology, 1969-70. Board certified. Presently in practice situation. Seeks multi-specialty group practice or industrial practice in population area of 25,000-99,000 with no preference as to area of state. Availability to be determined.

EMERGENCY ROOM, FAMILY PRACTICE — Age, 33. Graduated Emory University, Atlanta, Ga., 1971. Internship, Parkland Hospital, Dallas, Texas, 7/71-6/72. Residency, Downstate Med. Center, Brooklyn, N. Y., 7/75-6/77 (Family Practice); 6/77-present (Gen. Surg.). Board certified and board eligible. Seeks emergency room, single-specialty or

partnership practice. No preference as to size of area or area of state. Available, July, 1978.

OBSTETRICS AND GYNECOLOGY — Age, 47. Graduated Case Western Reserve, Cleveland, Ohio, 1956. Internship, Receiving Hospital, Detroit, Mich., 7/56-6/57. Residency, Methodist Hospital, Indianapolis, Indiana, 7/57-6/60. Board certified. Currently in practice situation. Seeks single-specialty, group, solo or multi-specialty group practice. Prefers to locate in upstate or midlands area of state. Three months notice prior to availability.

SURGERY, THORACIC, CARDIOVASCULAR & GENERAL — Age, 33. Graduated Univ. of West Indies, Kingston, Jamaica, 1969. Residency, Bronx Lebanon Hospital Centre, Bronx, N. Y., 7/71-6/72; N. Y. Med. College, Manhattan, N. Y., 6/72-7/75, General Surgery. Other — Cleveland Clinic Foundation, Cleveland, Ohio, 7/75-7/77, Cardiovascular and Thoracic Surgery. Academic Appt. Mt. Sinai Hosp., 8/77-10/77. Currently in practice situation. Seeks practice in single or multi-specialty group in academic situation. Available 1/78.

If interested in any of these physicians or seeking a physician to join your practice, contact:

*Director, Physician Recruitment
Rural Health Delivery Project
P.O. Box 11188
Columbia, S. C. 29211
Phone: (803) 779-7264*

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The Howard University College of Medicine and the National Jewish Hospital and Research Center announces a Symposium on "The Clinical Management of Tuberculosis," to be held March 10-11, 1978 at the Washington Hilton Hotel in Washington, D. C. *For information contact: Office of Continuing Education, Howard University Hospital, 2041 Georgia Avenue, N.W., Washington, D. C. (202) 745-1133.*

* * *

The Division of Continuing Education, MUSC, announces a course entitled "Urologic Pearls for the Family Physician," to be held March 17-18, 1978. The course is approved for

7¾ hours of Category I credit. *Further information may be obtained from Helen O'Toole, Division of Continuing Education, MUSC, Charleston, S. C. 29401.*

* * *

The Office of Continuing Education, UNC at Chapel Hill, announces the 11th Annual Malignant Disease Symposium, "Gastro-intestinal Malignancy — Update for Practicing Physicians," to be held April 21-22, 1978. *For additional information contact: Oscar L. Sapp, III, M.D., 236 MacNider Building 202H, The School of Medicine, University of North Carolina, Chapel Hill, N. C. 27514.*

* * *

Postgraduate courses in Sonic Medicine will be offered at Bowman Gray School of Medicine in 1978. Thirty credit hours per week in Category I have been approved. *For further information, contact: James F. Martin, M.D., Bowman Gray School of Medicine, Winston-Salem, N. C. 27103.*

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